United States
Department of Agriculture

Natural Resources
Conservation Service

Marysville Irrigation
Company

Yellowstone Soil
Conservation District

Environmental Assessment

Marysville Irrigation Company Gravity Pressurized Irrigation Delivery System

Fremont County, Idaho

May 2007

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Gravity Pressurized

Irrigation Delivery System

Prepared For the Marysville Irrigation Company

In Cooperation With The
Yellowstone Soil Conservation District

By The

USDA - Natural Resources Conservation Service

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Abstract: This Environmental Assessment (EA) addresses the effects of replacing an open ditch irrigation delivery system with buried plastic pipelines to distribute gravity pressurized irrigation water. The document analyzes the proposed action and the no action alternatives. The proposed action includes the construction, operation and maintenance of three plastic pipelines that provide for the delivery of gravity pressurized irrigation water to approximately 6,130 acres surrounding Marysville, Idaho, eliminating most of the need for pumping powered by electric motors. Approximately 1,000 acres would require booster pumps. Water would only be drawn from the pipe when irrigation is required, eliminating overflow to the Henry's Fork River. The proposed action would eliminate about 90% of the water seepage loss from the canals and would eliminate the need for approximately 1,600 horsepower from electric pump motors. The document describes the effects of two alternatives on ecological, aesthetic, historic, cultural, economic, social, and health conditions. A cost benefit analysis using Principles and Guidelines was completed.

This document fulfills requirements of the National Environmental Policy Act (NEPA), and the Natural Resources Conservation Service - National Environmental Compliance Handbook.

This document was prepared under the authority of Public Law 46, as amended (16 U.S.C. 590a-f), 42 U.S.C. 4321 et seq.; 7CFR 650.11 (b) 3; and in accordance with the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 U.S.C. 4321 et seq.).

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1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The Marysville Irrigation Company (MIC) proposes to convert the present open irrigation canal delivery system that serves farmland in the Marysville, Idaho area to a closed gravity pressurized irrigation pipeline system. The Natural Resources Conservation Service (NRCS) is preparing this Environmental Assessment (EA) for the proposed project. The project area this document describes is 6,130 acres served by approximately 25 miles of open canal (Map 1, Appendix B).

Marysville Irrigation Company delivers irrigation water from the Falls River through a series of open ditches to individual landowners. These landowners typically use an electric motor and pump to pressurize the irrigation water. The water is then applied to crops through sprinkler systems, typically hand line, side roll wheel move or center pivot systems.

Inefficiencies in the existing open ditch delivery system make it necessary for the MIC to divert more water than the crops actually use. The MIC currently diverts an average of 9,260 acre feet per year to the project area. Water is diverted from Falls River flows and from stored water in Grassy Lake Reservoir. Approximately 4,500 acre feet are applied to crops and 4,760 acre feet go to losses.

The losses that make up the difference between water diverted and water consumed come from several sources. Water transported in the open ditches is lost to evaporation (about (~) 25 acre feet per year), infiltration (~ 3,530 acre feet per year), and plant consumptive use by vegetation growing along the banks (~ 35 acre feet per year). Water that has not been used at the end of the ditch typically overflows back into Henry's Fork River (~ 1,170 acre feet per year). Described as a volume per unit area, these losses are estimated at approximately 0.59 acre-feet/acre/year of loss in the ditches and 0.19 acre-feet/acre/year for overflow.

Water is also lost through evaporation and misplacement when it is sprinkled onto crops, although that volume is not quantified here because the on-farm water application systems (existing sprinkler systems) are relatively new and relatively efficient and are not forecast to change as a result of the proposed project. The sprinkler systems consist of a mix of continuously moved center pivot sprinklers and periodically moved side roll and hand line sprinklers. Water use efficiency (water applied to the crop compared to water used by the crop) of the sprinkled water is estimated at approximately 65%.

Currently, individual landowners take water from the open ditches and pressurize it with pumps powered by predominantly electric motors. The existing project area has 54 canal turnouts and pump motors totaling 2,000 horsepower, and annual electrical usage for irrigation is estimated to be 2,100,000 kW-hrs.

1.2 PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to maximize conservation and minimize use of irrigation water and energy required to irrigate all existing cropland within the project area.

The need for the action is to provide a reliable water supply, reduce water losses due to seepage in the existing canal delivery system, reduce electric energy consumption, and provide economic stability to the local area.

1.3 AGENCY AND SPONSOR ROLES

NRCS serves as Lead Agency for preparation of this Environmental Assessment. The Marysville Irrigation Company, which is the sponsor, would be responsible for any construction and subsequent operation and maintenance of any improvements or construction.

1.4 LOCATION AND BACKGROUND

The project area is located in eastern Idaho on a rhyolite plateau at the upstream end of the Upper Snake River Plain. The Henry's Fork River generally follows the project's north boundary, with its tributary, the Falls River, dissecting the plateau and forming part of the project area boundary on the south. Elevations range from 5,200 feet in the west to 5,500 feet in the east. The project area is located in Fremont County, approximately 15 miles north of St. Anthony. Agricultural lands surround the communities of Ashton on the west side of the project and Marysville in the center of the project area.

1.5 HISTORICAL OVERVIEW

Large scale settlement did not occur in this area until the late 1880s with the arrival of homesteaders and agricultural speculators. The early homesteaders made several attempts at conveying water from Falls River to their properties with only nominal success. In 1889, the first engineering survey was conducted on what was to become the Marysville Canal. Construction began immediately although the progress was slow and funds limited.

It was not until after 1894 that construction began in earnest, when the U.S. Congress passed the Carey Act allowing irrigation companies to incorporate and sell bonds. James Brady, who was to become Idaho's eighth governor and a U.S. Senator, formed the Marysville Canal and Improvement Company under the Act's authority. This company completed the main portion of the Marysville Canal, then called the Brady Canal, and was near completion of the large North Lateral by 1910.

From the first irrigation in 1889 until the mid 1950's, on-field application was accomplished using contour ditches. From the mid 1950's to the mid 1960's the entire area was converted to hand line and wheel line sprinkler systems for on-field application. Many of these older, less efficient sprinkler systems were converted to center pivot systems by the mid 1980's.

1.6 SUMMARY OF SCOPING

A scoping process was conducted to identify the important issues to be considered and evaluated

through the planning process. This allowed an opportunity for the public to identify issues and provide information that should be considered as the plan was prepared. The public scoping meeting was held on August 22, 2006 at the North Fremont High School in Ashton, Idaho. The date and location of this meeting were publicized through mailings and news releases. Meeting facilitators made a "concerns and comments" questionnaire available and encouraged participants to complete it. They also encouraged attendees to comment publicly or provide written comments.

All public comments, questions and concerns are listed in Consultation and Public Participation (Section 4 of this document).

The following issues were identified for further study by the Interdisciplinary Team and Public Scoping process:

Impacts on aquatic and riparian habitats
Impacts to water quality
Impacts on air pollution and soil productivity
Impacts on plants, terrestrial species and habitats, and Threatened and Endangered Species
Impacts to historic and other cultural resources
Impacts to the local economy
Impacts to crop production
Impacts to ground water
Impacts to the Henry's Fork and Falls Rivers
Impacts on wells
Impacts on non-agricultural irrigation water users
Impacts on surface water drainage
Impacts to aesthetics
Impacts to power generation

2 ALTERNATIVES

2.1 FORMULATION PROCESS

The purpose of this study is to identify the effects of the Proposed Action. The Proposed Action consists of:

Replacing the present open irrigation canal delivery system with a closed, gravity pressurized irrigation pipeline delivery system.

The study was conducted using the guidance provided in Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, March 1983; the NRCS National Environmental Compliance Handbook, 2003; and the National Resource Economic Handbook, Part 611 Water Resources, 1998.

2.2 DESCRIPTION OF ALTERNATIVE PLANS

Several project alternatives were identified and two were studied for this evaluation. The two include:

Alternative A - No Action Alternative (Future without Project Condition)
Alternative B - Proposed Action Alternative - Replace the Open Ditch Irrigation Delivery System with a Gravity Pressurized Irrigation Delivery System

2.3 EVALUATION AND COMPARISON OF ALTERNATIVES

2.3.1 Alternative A – No Action Alternative (Future without Project Action)

The Marysville Irrigation Company (MIC) would continue to operate the system as they have in the past with an open irrigation canal system. Sprinkler irrigated acres would continue to use motors and pumps to pressurize the individual sprinkler irrigation systems. Water losses of approximately 51 percent would continue in the delivery system, and the MIC would not be capable of providing full season irrigation water needs 7 years out of 10.

This alternative does not meet the sponsor's objectives (Purpose and Need, Section 1.2) of: 1) reducing power consumption to existing sprinkler irrigation systems and 2) reducing the 51 percent water losses in the canal delivery system. There are no costs or benefits associated with the No Action Alternative.

2.3.2 Alternative B – Proposed Action – Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

The project sponsors have selected Alternative B as the Preferred Alternative. This alternative meets their objectives.

The Proposed Action Alternative would replace the open ditch system with buried plastic pipes

to distribute irrigation water. The pipes would allow gravity to pressurize the water, eliminating most of the need for electrically powered pumps. Water would only be drawn from the pipe when irrigation is required, eliminating any overflow to the Henry's Fork River. Also, the system of plastic pipes would eliminate about 90% of the seepage loss from the canals.

The Proposed Action Alternative would replace any loss of grassy and woody borders associated with the decommissioning of 50% of existing irrigation canals. Approximately 10 acres of herbaceous field borders and 5 acres of artificial scrub/shrub wetlands would be lost when the project changes the open delivery system to a closed pipeline. Landowners would be responsible for planting appropriate herbaceous or woody vegetation on their land to replace lost habitat value. Five acres of palustrine scrub/shrub wetlands would be planted associated with the irrigation regulating reservoir. The tree and shrub plantings would replace functions and values lost due to the decommissioning of the existing irrigation delivery system.

The Proposed Action Alternative would include three main pipelines (Map 2, Appendix B). These pipelines would follow a similar route as the existing North-North, the North and the Turkey Track open canals. The open canals would be filled in where it is practical and advantageous to the layout of the farm fields.

The pipelines serving the North-North and the North service areas would have a small irrigation regulating reservoir at the inlet. This reservoir would store water when system demand is low, and release it when the pipeline needs more water. The pipeline inlet for the Turkey Track would be directly from the canal. Water that does not enter into the Turkey Track pipeline would continue down the canal to other users.

Users at the upper end of each pipeline would not have adequate gravity pressure to irrigate. These users would be provided additional pressure from a pump driven by an electric motor (booster pump). The energy to provide adequate pressure to these uphill water users is expected to be approximately 350 hp. Approximately 1,000 of the 6,130 irrigated cropland acres would require booster pumps. Annual energy consumption if this alternative is installed is estimated to be 350,000 to 400,000 kW-hr.

Currently, the water diverted to the project area is 9,260 acre feet per year. If the Proposed Action Alternative is installed, this amount would drop to approximately 4,980 acre feet per year. The 4,280 acre feet (90% of the current water that is lost or 46% of the No Action Alternative total water diverted) of 'saved' water would be retained in Grassy Lake reservoir and used to extend the irrigation season, generate electricity, or offset water that was previously rented.

Currently the project area has irrigation pumps driven by 2,000 hp of electric motors. If the Proposed Action Alternative is installed, the project would use only 350 hp of electric motors, eliminating about 1,600 hp. Approximately 1,700,000 kW-hr per year of electric use would be eliminated.

2.3.3 Costs

Total project costs are estimated at $3,813,400 including construction, engineering and

administration. Average annual costs including installation, operation, maintenance and replacement are $329,240. Tables 1 and 2 display a detailed itemization of project construction and average annual costs.

Engineering service costs include the direct cost of services of engineers and technicians for design survey, investigations, preparation of drawings and specifications for structural measures.

Project administration costs are associated with the installation of structural measures, including the cost of contract administration, government representatives, obtaining permits and advisory services.

2.3.4 Benefits

Average annual project benefits are estimated to be $377,800. Table 3 displays a detailed itemization of project benefits.

Total benefits to be derived from installation of structural measures cannot be realized unless these measures are operated and maintained to serve the full purpose for which they are installed. Operation, maintenance and replacement costs are the costs of materials, equipment, services and facilities needed to operate the project, and make repairs and replacements necessary to maintain structural measures in sound operating conditions during the evaluated life of the project.

Table 1: - Marysville Gravity Pressurized Irrigation Delivery System Installation Costs									
Practice Item	Unit	Number of Units	Unit Cost	Construction Cost	Contingency Costs	Total Construction Cost	Engineering Costs	Project Admin.	Total Installation Cost
Inlet Structure for Water Control	no.	2	$ 25,000	$ 50,000	$ 5,000	$ 55,000	$ 5,500	$ 2,800	$ 63,300
Irrigation Regulating Reservoir	no.	1	50,000	50,000	5,000	55,000	5,500	2,800	63,300
Structure Subtotal				**$ 100,000**	**$ 10,000**	**$ 110,000**	**$ 11,000**	**$ 5,600**	**$ 126,600**
30 Hp Pumping Plant	no.	2	$ 6,900	$ 13,800	$ 1,400	$ 15,200	$ 1,500	$ 800	$ 17,500
25 Hp Pumping Plant	no.	1	6,100	6,100	600	6,700	700	300	7,700
20 Hp Pumping Plant	no.	2	5,300	10,600	1,100	11,700	1,200	600	13,500
15 Hp Pumping Plant	no.	6	4,400	26,400	2,600	29,000	2,900	1,500	33,400
10 Hp Pumping Plant	no.	4	3,450	13,800	1,400	15,200	1,500	800	17,500
7.5 Hp Pumping Plant	no.	1	2,800	2,800	300	3,100	300	200	3,600
≤5 Hp Pumping Plant	no.	1	2,100	2,100	200	2,300	200	100	2,600
Pumping Plant Subtotal				**$ 75,600**	**$ 7,600**	**$ 83,200**	**$ 8,300**	**$ 4,300**	**$ 95,800**
North-North Lateral	ft.	16,100	$ 22.51	$ 362,500	$ 36,300	$ 398,800	$ 39,900	$ 19,900	$ 458,600
North Lateral	ft.	32,500	44.12	1,434,000	143,400	1,577,400	157,700	78,900	1,814,000
Turkey Track	ft.	36,700	28.30	1,038,700	103,900	1,142,600	114,300	57,100	1,314,000
Pipeline Subtotal				**$2,835,200**	**$ 283,600**	**$ 3,118,800**	**$ 311,900**	**$ 155,900**	**$3,586,600**
Conservation Cover	ac.	10	$ 120	$ 1,200	$ 100	$ 1,300	$ 100	$ 100	$ 1,500
Tree & Shrub Establishment	ac.	5	465	2,300	200	2,500	300	100	2,900
Vegetative Planting Subtotal				**$ 3,500**	**$ 300**	**$ 3,800**	**$ 400**	**$ 200**	**$ 4,400**
Total Installation Cost				**$ 3,014,300**	**$ 301,500**	**$ 3,315,800**	**$ 331,600**	**$ 166,000**	**$3,813,400**

Price Base 2007 Jan-07

Table 2: - Marysville Gravity Pressurized Irrigation Delivery System Average Annual Costs

Practice Item	Installation Cost	Engineering	Project Admin.	Operation & Maintenance	Replacement Cost	Total Costs
Inlet Structure for Water Control	$ 4,460	$ 450	$ 230	$ 550	$ 0	$ 5,690
Irrigation Regulating Reservoir	4,460	450	230	550	880	6,570
Structure Subtotal	**$ 8,920**	**$ 900**	**$ 460**	**$ 1,100**	**$ 880**	**$ 12,260**
30 Hp Pumping Plant	$ 1,230	$ 120	$ 60	$ 130	$ 110	$ 1,65
25 Hp Pumping Plant	540	60	20	230	190	1,040
20 Hp Pumping Plant	950	100	50	580	470	2,150
15 Hp Pumping Plant	2,350	240	120	300	240	3,250
10 Hp Pumping Plant	1,230	120	60	60	50	1,520
7.5 Hp Pumping Plant	250	20	20	50	40	380
≤5 Hp Pumping Plant	**$ 6,550**	**$ 660**	**$ 330**	**$ 1,350**	**$ 1,100**	**$ 9,990**
North-North Lateral	$ 32,340	$ 3,240	$ 1,610	$ 2,000	$ 0	$ 39,190
North Lateral	127,920	12,790	6,400	$ 7,900	0	155,010
Turkey Track	92,660	9,270	4,630	$ 5,700	0	112,260
Pipeline Subtotal	**$ 52,920**	**$ 25,300**	**$ 12,640**	**$ 15,600**	**$ 0**	**$ 306,460**
Conservation Cover	$ 110	$ 10	$ 10	$ 40	$ 60	$ 230
Tree & Shrub Establishment	200	20	10	30	40	300
Vegetative Planting Subtotal	**$ 310**	**$ 30**	**$ 20**	**$ 70**	**$ 100**	**$ 530**
Total Annual Cost	**$ 268,700**	**$ 26,890**	**$ 13,450**	**$ 18,120**	**$ 2,080**	**$ 329,240**

Price Base 2007, Discounted at 5.125% over 20 years. Jan-07

Table 3: - Marysville Gravity Pressurized Irrigation Delivery System – Annual Benefits			
	W/O Project	W/Project	Benefit
On farm Irrigation Water Cost	$ 53,710	$ 28,880	$ 24,830
On farm Power Cost to Irrigate	96,330	16,860	79,470
Cost of Farming Tillage & Harvest Operations (Farm Efficiency)	786,650	708,000	78,650
Operation & Maintenance to On farm Pumps & Motors	61,240	19,970	41,270
Saved Water Available for Rent	0	17,380	17,380
Reduced Cost of Maintenance on the Existing Canal	0	39,900	39,900
Saved Water Available for Power Generation	0	96,300	96,300
Total Benefit			$ 377,800

Price Base 2007 Jan-07

Table 4: - Marysville Gravity Pressurized Irrigation Delivery System Comparison of Average Annual Cost and Benefits			
Recommended Plan Measures	Benefits [1/]	Costs [2/]	Benefit Cost Ratio
Pipeline, Pumping Plants, Irrigation Structures & Vegetative Planting	$ 377,800	$ 329,240	1.15 to 1.00

Price Base 2007 Jan-07
[1/] From Table 3
[2/] From Table 2

Table 5: - Effects of the two Alternatives on Resources of Principal National Recognition

Types of Resources	Principal Sources of National Recognition	Measurement of Effects Alternative 1	Measurement of Effects Alternative 2
Air Quality	Clean Air Act, as amended (42 U.S.C.7401 et seq.).	No effect.	Short-term effect from dust during construction. No long-term effect.
Areas of particular concern within the coastal zone	Coastal Zone Management Act of 1972, as amended (16 U.S.C.1451 et sq.).	Not present in planning area.	Not present in planning area.
Endangered and Threatened Species	Endangered Species Act of 1973 as amended (16 U.S.C.1531 et seq.).	No effect.	No effect.
Fish and Wildlife Habitat	Fish and Wildlife Coordination Act (16 U.S.C.Sec.661 et seq.).	No effect.	Short-term disturbance of roosting and nesting along construction corridor. 15 acres of wetland, shrub and tree, and grassland habitat would be replaced.
Floodplains	Executive Order 11988 Floodplain Management.	No effect.	No effect.
Historic and Cultural Resources	National Historic Preservation Act of 1966 as amended (16 U.S.C. Sec 470 et seq.).	No effect.	Potential effect resolved by MOA M-0211-34 with the Idaho SHPO & ACHP.
Prime and Unique Farmland	CEQ Memorandum of August 1980: Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act, and the Farmland Protection Policy Act of 1981. (7CFR 658.5)	No effect on prime and important farmland in crop production	No effect on prime and important farmland in crop production
Water Quality	Clean Water Act of 1977, as amended (42 U.S.C. 1857h-7 et seq.).	Continued delivery of sediment from project area to Henry's Fork River.	Slight impact with negligible effect of decreased sediment delivery to Henry's Fork River from irrigation overflow. Slight impact to ground water may be a minor increase in the level of nitrates in some area wells until the aquifer re-equilibrates to new hydrological conditions. Long-term impact of reduction in nitrate loading and reduced levels of nitrate in wells.
Water Quantity			Full season irrigation water. Slight long-term reduction of groundwater recharge. Slight increased flows in Falls River. Slight decrease in summer flows in Henry's Fork River.
Wetlands, Protection of	Executive Order 11990, Clean Water Act of 1977 (33 U.S.C. 1251, et seq.). Food Security Act of 1985. Executive Order 11990, Protection of Wetlands: Clean Water Act of 1977, as amended (42 U.S.C. 1857h-7 et seq.).	No effect.	Loss of 5 acres of artificial wetlands replaced with 5 acres of planted palustrine scrub/shrub wetlands.
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C.1271 et seq.).	Not present in planning area.	Not present in planning area.

2.4 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

2.4.1 Rationale for the Preferred Alternative

The project sponsors have selected Alternative B as the Preferred Alternative. This alternative meets the objectives of the sponsors. The purpose of the Preferred Alternative is to maximize the conservation and use of irrigation water and the energy required to irrigate all of the existing cropland within the project area. The associated need for the action is to provide a reliable water supply, increase irrigation water efficiency and management, eliminate water losses associated with the open irrigation canal system, reduce power consumption required for irrigation, and maximize on-farm crop net return.

This would be accomplished by the conversion of 6,130 acres of cropland from electric pressurized sprinkler irrigation to gravity pressurized sprinkler irrigation. About 1,000 acres of cropland would require on-farm pressurization (booster pumps).

2.4.2 Operation and Maintenance

The Proposed Action Alternative would replace 20 to 25 miles of open canal with buried pipelines. Each landowner would have an irrigation turnout with a valve and a meter to measure water flow.

In many cases individual pumps and their associated operation and maintenance (O&M) would be eliminated. In some cases landowners would install a new pump and a smaller motor to take advantage of the partial gravity pressure supplied by the pipeline. These newer pumps and motors would minimize O&M.

O&M of the delivery system would change from maintaining an open ditch system to maintaining a buried pipeline system. Open ditch maintenance (spraying weeds, burrowing rodent control, fixing leaks) would switch to buried pipeline maintenance which is primarily fixing leaks.

Operation of the system would also change. Individual landowners would not regulate flow from an open ditch, and a ditch rider would not be needed to assure the correct flow was metered throughout the canal. If the Proposed Action Alternative is installed, individual landowners would simply open a valve to start the flow of irrigation water. Overall, costs for maintenance would not change very much for the MIC. Costs for maintenance for individual landowners would be slightly reduced.

2.4.3 Permits and Licenses

The Proposed Action Alternative would be implemented entirely on private land. Several local, state and/or federal permits or licenses may be required. The Marysville Irrigation Company would be responsible for securing them and payment of any related costs that are incurred. There are some road crossings as addressed in Section 3.20 – Transportation, Public Utilities and Access, and these would be coordinated with the State Department of Transportation as well as the Fremont County Secondary Road Department.

The MIC currently has at minimum, an operation and maintenance easement on the existing

ditches. These easements should be preserved and transferred to the pipeline route if possible.

There would be no construction in live streams that would require a Clean Water Act fill and removal permit. A potential exists for the pipeline route to cross wetlands. Trench construction may impact these wetlands. This impact would be temporary, and given that the entire route is through farm fields, unlikely. A wetland delineation would be completed along the pipeline route prior to construction.

As an organized company, MIC can redistribute water use within the project as they see fit. As such, no water rights transfers are thought to be needed. The MIC should notify Idaho Department of Water Resources to assure no agreements are needed.

An erosion and sediment control plan would be prepared by the construction contractor and submitted to US Environmental Protection Agency for Phase II stormwater pollution prevention compliance. Additionally, a National Pollution Discharge Elimination System (NPDES) permit for stormwater control may be required from U.S. Environmental Protection Agency, if the area disturbed is 1 acre in size or greater.

2.4.4 Risk and Uncertainty

USDA NRCS Environmental Quality Incentive Program (EQIP) funds have been identified as a funding source of the project. Approximately $1,400,000 has been obligated for construction of the Proposed Action Alternative. An additional $306,000 has been requested. Obligation of additional funds is dependent on their availability. Cost estimates are the engineer's best estimate for the near future and include contingencies to account for unexpected conditions. Actual costs of construction may vary depending on the actual costs of materials and labor at the time of installation.

Availability of water quantity was estimated based on historic stream flows. However, future stream flows cannot be predicted. Extended periods of drought or above average precipitation would have an impact on repayment of construction costs and accrued benefits. Changes in water supply management options associated with delivery of irrigation water through a pipeline would increase the likelihood of a full season of irrigation. Change in location and timing of surface water loss to ground water may impact water levels in some areas of the basin.

A permanent Operation & Maintenance easement would be required and is usually narrow in width (30 to 50 feet) along the pipeline route. Obtaining the Operation & Maintenance easements would be the responsibility of Marysville Irrigation Company.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED

Several alternatives were discussed to meet the Marysville Irrigation Company's primary objectives of minimizing water loss and minimizing power consumption:

1. A pipeline was considered to convey all of the MIC water to all of the water users. This pipeline would begin at the power plant and branch into roughly 4 pipelines, similar to the existing North-North, North, Turkey Track Laterals, and Farmers Own service areas. Preliminary pipe sizes ranged from 6 to 8 feet in diameter at pipeline inlet and preliminary costs

were tens of millions of dollars. A project this size was deemed unfeasible due to cost and complexity.

2. A pipeline to simply supply gravity pressure to the North-North and North Laterals was examined. This pipeline would not serve the Turkey Track Lateral at all, and this area has significant water loss. Similarly, water users at the upstream end of the pipeline would still need to provide pumps to pressurize their irrigation systems.

3. Lining the existing canals with a synthetic liner was examined. This alternative appeared to have very high annual maintenance costs, and did nothing to minimize power consumption.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 SOILS AND PRIME FARMLAND

3.1.1 Affected Environment

The following soils are found in the project area.

Map Unit 24 – Greentimber-Marystown-Robinlee silt loams, 1 to 4 percent slopes. This map unit occurs on plains and moraines formed in glacial drift influenced by loess. These soils are very deep, well drained with a dark organic rich surface (mollic epipedon) greater than 20 inches thick. Marystown soils gradually increase in clay content from a silt loam to a silty clay loam with depth and have little to no rock fragments throughout the soil profile. Greentimber also has clay accumulation and has an increase of rock fragments to 30 percent at about 55 inches. Robinlee has both clay and calcium carbonate accumulations with little to no rock throughout the horizon.

All of these soils are considered prime farmland, but none are hydric.

Map Units 49, 50, and 51 – Kucera-Lostine silt loams, 0 to 2, 2 to 4, and 4 to 8 percent slopes. These map units consists of two soils that are both very deep and well drained with a dark organic rich surface greater than 20 inches. The Kucera series is located on terraces, foothills, and basalt plains that formed in loess and silty alluvium from mixed sources. It has a texture of silt loam throughout the whole soil, with some calcium carbonate accumulation and no rock fragments. Lostine soils are on outwash plains, terraces, and fans that formed from mixed alluvium. This soil is mostly a silt loam, but there is deeper horizon that is a very gravely sandy loam with 45 percent gravel. Depending on where on the landscape this soil exists with relations to where the pipeline would to be buried, this layer may cause some problems for construction.

Both soils are considered prime farmland, but are not hydric.

Map Unit 54 – Kucera-Sarilda silt loams, 2 to 6 percent slopes. This map unit contains two soils that are both well drained and have a dark organic rich surface. The Sarilda series is moderately deep (20 to 40 inches) to bedrock that is formed in loess over basalt or rhyolite plains. The soil texture is predominately silt loam, but the depth maybe the biggest barrier.

Both of these soils are considered prime farmland, but neither is hydric.

Map Unit 69 – Marotz silt loam, 1 to 4 percent slopes. This map unit is made up of the Marotz series with a silt loam surface texture. The Marotz series is a very deep, well drained soil that formed in loess influenced glacial drifts on upland plains. This soil has some clay accumulations starting at 25 inches. Rock fragments are present throughout the whole soil and increase with depth.

This map unit is considered prime farmland and is not hydric.

Map Unit 72 – Marystown silt loam, 1 to 4 percent slopes. This map unit contains the Marystown series with a silt loam surface texture. Marystown are very deep, well drained soils found on plains that formed in glacial drift influenced by loess. This soil has a dark organic rich surface (mollic epipedon) greater than 20 inches thick.

This soil is considered prime farmland, but not hydric.

Map Unit 76 – Marystown-Robinlee-Rexburg, hardpan substratum silt loams, 1 to 4 percent slopes. This map unit contains soils that are very deep, well drained with little to no rock fragments throughout the profiles. Rexburg is formed in loess and silty alluvium derived from loess and is found on loess covered fan terraces and basalt plains. Robinlee soils are found on nearly level to undulating moraines formed in glacial drift influenced by loess.

All of these soils are considered prime farmland, but none are hydric.

Map Unit 102 – Robinlee-Marystown silt loams, 1 to 4 percent slopes. This map unit occurs on plains and moraines formed in glacial drift influenced by loess. These soils are very deep, well drained with a dark organic rich surface (mollic epipedon) greater than 20 inches thick.

All of these soils are considered prime farmland, but none are hydric.

3.1.2 Environmental Consequences

3.1.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to soils and prime farmland.

3.1.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be no change in present conditions and **no effects** to soils and prime farmland.

3.2 FLOODPLAINS, FLOODING, HYDROLOGY AND SURFACE WATER QUANTITY

3.2.1 Affected Environment

The Henry's Fork River flows north of the project area. The Falls River flows south of the project area. There are no other named rivers or creeks around or within the project area. The Henry's Fork is regulated by Henrys Lake and Island Park reservoirs. It flows an average of 1,520 cfs over the year (USGS 2006, Henry's Fork at Ashton). The peak month is May when the flow averages 2,620 cfs. The peak of record on the Henry's Fork is above 8,000 cfs.

The Falls River is regulated slightly by Grassy Lake reservoir, it flows an average of 820 cfs

throughout the year. The peak month is May when the river averages 2,170 cfs. The peak flow for the Falls River is more than 5,500 cfs (USGS, 2006 Falls River at Ashton).

Both rivers flow in very confined canyons with very narrow floodplains as they come off the Yellowstone Plateau towards Ashton.

There are no named streams within the project area. Irrigation canals carry diverted Falls River water across the landscape. This network of canals also channels seasonal runoff across the landscape and in some cases to the Henry's Fork River.

Currently excess irrigation water is channeled to the Henry's Fork River at three points.

3.2.2 Environmental Consequences

3.2.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to flood plains, flooding, hydrology and surface water quantity.

3.2.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be a minor change in present conditions and **no effects** to flood plains and flooding, and **minor effects** to hydrology and surface water quantity.

The Proposed Action Alternative would have very little impact on flood flows, average flows or low flows in the river. The Proposed Action Alternative would 'save' or redistribute 4,280 acre feet of Falls River water. Of this saved water, a return flow of 1,170 acre feet would be eliminated from the Henry's Fork River. Even in the unlikely event that this return flow happens entirely within a single month, this flow amounts to only 20 cfs over 30 days. Compared to the average flow in September of 1,510 cfs, this is about 1%.

There would be no measurable impact to peak flows or average flows in the Henry's Fork River. No construction or manipulation would occur in the floodplain. There would be no hydrologic impact to floodplain function.

Currently 9,260 acre feet are diverted from the Falls River by the irrigators in the project area. If the Proposed Action Alternative is installed, that number would drop to 4,980 acre feet. The 4,280 acre feet of saved water would be retained in Grassy Lake Reservoir, and released at a different time to either extend the irrigation season or generate electricity.

If the 4,280 acre feet of losses were used entirely for irrigation, there would be a slight increase in average river flow. In the unlikely event all of this water was released in a single month the increase in flow would be about 71 cfs. The average flow in the Falls River currently is 546 cfs, or a potential increase of 13%. Even in this unlikely scenario of flow increase it is doubtful there would be biologic or physical impacts.

If the saved water were released for power generation, the flow would be extended over a longer period resulting in less increase in average flow for a single month. Water used for power generation is returned to the river below the powerhouse.

The nominal hydrologic impacts listed above to the Falls River would be experienced between Grassy Lake and Marysville Irrigation Diversion on the upper Falls River, and for approximately 7 miles between the return flow point of the hydro power and the next downstream irrigation diversion on the lower Falls River.

There would be no impact to peak flows or average flows in the Falls River. No construction or manipulation would occur in the floodplain. There would be no hydrologic impact to floodplain function.

If the Proposed Action Alternative is installed, some of the existing irrigation ditches may be filled in to facilitate farming operations. Filling in these ditches would impact how storm runoff is distributed on the landscape. It is anticipated that the canals across the slope would be filled in first and most extensively. Most ditches that are in existing drainages would not be filled in.

It is impossible to estimate the exact magnitude of these impacts, and the magnitude varies depending on where it is analyzed. In general, disconnecting the canal system from the surface runoff patterns would restore surface runoff to historic waterways. This would have the effect of:

1. Providing more area for infiltration
2. Lowering the peak discharge
3. Possibly increasing the wetted area for a longer period of time

A hydrologic simulation was created for the North Lateral. Peak discharge was examined at a point in the SW ¼ of the NE ¼ of Section 24, a mile north of Ashton. Here, the North Lateral drains a watershed of 1,600 acres through about 4 miles of ditch. For a 10 year, 24 hour storm of 2.0 inches, and an assumed land use of ¼ fallow, ¼ wheat stubble, and ½ conservation tillage, the landscape yields ½ inch (70 acre feet) of runoff. WinTR55 (NRCS, 2004) predicts a peak flow at the outlet of 270 cfs.

If the North Lateral is filled in, this peak flow drops to 190 cfs. Overall runoff is unchanged (in the model) but spread out over a longer time due to the lack of channel conveyance.

The primary impact to surface water if the Proposed Action Alternative is installed would be to change surface runoff patterns. Simplistic modeling indicates that peak flows may be reduced up to 30%. Runoff volumes would not change, but a larger area of the landscape may be wetter during the natural runoff period.

3.3 GEOLOGY AND GROUND WATER QUANTITY

3.3.1 Affected Environment

The project area lies at the northeastern edge of the Eastern Snake River Plain between two large volcanic features called calderas. The calderas are the collapsed remains of volcanoes that emerged and erupted as the earth's crust moved over a hot spot that is now under Yellowstone National Park northeast of the project area. The caldera north of Ashton is actually a series of three: the Huckleberry Ridge Caldera; Island Park caldera; and the still active Yellowstone Caldera. The formation of the volcanoes and later collapse of the calderas was accompanied by eruptions of large volumes of volcanic material. Most of this material was rhyolite. This area is collectively referred to as the Yellowstone Plateau.

The rocks in the project area chronicle the history of the eruptions and subsequent deposition of more recent soil deposits. The Huckleberry Ridge Tuff is the light to purplish-gray volcanic material (rhyolite) that forms the bedrock underlying most of the area. The Huckleberry Ridge Tuff was deposited as a huge ash-flow and ash-fall when the Huckleberry Ridge caldera collapsed, and covers an area about 6000 miles square from Idaho Falls to Big Sky, Montana. When the Island Park volcano erupted and then collapsed, the Mesa Falls Tuff was deposited over the top of the Huckleberry Ridge Tuff. The pinkish- or brownish-gray Mesa Falls rhyolite tuff can be seen near the tops of ridges and low hills in the area.

After the rhyolite volcanoes formed and collapsed into calderas, a second period of volcanic activity occurred. Basalt shield volcanoes and vents formed as the area was stretched by faulting and crustal movement. These basalt vents deposited lava flows over most of the rhyolite rock. The Falls River Basalt lies discontinuously over the Huckleberry Ridge Tuff south and east of the Henry's Fork River in the Project Area.

The most recent deposits in the area are largely the result of glaciers in the mountains to the east and north. Moraine materials and outwash from glaciation of the Teton Mountains and the Rocky Mountains/Yellowstone Plateau are deposited over the basalts and tuffs. Modern stream deposits of silt, sand and gravel line the drainages which flow west off the Teton Mountains and Yellowstone Plateau. Large amounts of windblown sediments called loess are deposited over parts of all the other rocks and soil in the area. The loess is silt and fine sand which was picked up from the drying glacial outwash and alluvial sediments by the wind, and deposited according to wind current and surface topography of the land throughout the area. The sand hills west of Ashton are active sand dunes made of wind-blown quartz grains. The quartz grains are the remains of material eroded off the mountains to the west and north.

Ground water recharge occurs primarily from snowmelt on the Yellowstone Plateau to the northeast and from direct precipitation within the project area. Some recharge also occurs in "losing" sections of surface streams in the project area. The Ashton weather station reports average annual precipitation of 20.65 inches (1961-1990). Of this, about 40 percent is in the form of snow or rain during the winter months.

Additional recharge is associated with the existing irrigation delivery system of open canals and ditches. Based on measurement records of water diverted into the existing irrigation delivery

system, water delivered to individual agricultural operations, and water returned to the Falls or the Henry's Fork Rivers, the Marysville Irrigation Company estimates that about 3,600 acre-feet of irrigation water is lost to seepage, evaporation, and riparian vegetation consumptive use along the canals in the project area annually.

The amount of recharge associated with on-field irrigation water losses has been reduced as irrigation methods have evolved and become more efficient. From the first irrigation in 1889 until the mid 1950's on-field application was accomplished using contour ditches. Irrigation water efficiencies for contour ditch systems are typically about 30 percent. From the mid 1950's to the mid 1960's the entire area was converted to hand line and wheel line sprinkler systems for on-field application. Many of these older, less efficient (about 50 percent efficient) sprinkler systems were converted to center pivot systems by the mid 1980's. These systems are about 70 percent efficient in water application.

Ground water typically moves vertically (down) and horizontally towards discharge zones, mainly along the Henry's Fork and Falls Rivers. The general flow direction of groundwater in the project area is from east-northeast to west-southwest. Most of the project area is underlain by a large zone of perched ground water associated with layered basalt flows and interbedded sediments. Below the perched water zone is an unsaturated zone underlain by the regional Snake River Plain Aquifer. Any water that collects or falls on the ground surface (and infiltrates) percolates downward until either a confining rock or sediment layer is encountered, or until it reaches the perched water zone. Water then moves laterally toward discharge zones (the surface streams) or continues to percolate downwards to the regional aquifer.

Information from the Idaho Department of Water Resources (IDWR) Website Well Driller Reports Database indicates that static water levels (SWL) range from 4 to 75 feet on the west side of the project area to 120 to 260 feet on the east side. Well data also indicate a perched groundwater table in the center part of the project area, about 2 miles east of Marysville. Water levels here range from artesian (flowing at the surface) to 30 feet deep.

The IDWR Ground Water Level Database (USGS readings) includes 3 wells in or immediately adjacent to the Project Area. Water level readings from 1974 to 2005 indicate the water table has lowered an average of about 17 feet since 1974 (31 years). This may be at least partly attributable to conversion of older sprinkler irrigation to center pivot sprinkler systems and the associated increase in irrigation efficiencies.

One of the 3 wells in the project area was read on a monthly or bimonthly basis from 1986 to 2006. These readings reflect an average annual fluctuation of water levels of about 12 feet, with the lowest water levels in the late spring prior to the irrigation season, and the highest levels in the late summer/early fall near or just after the end of the irrigation season. These average fluctuations appear to be consistent with annual climatic effects of temperature and precipitation variations and with water losses in the existing delivery system and on-field application as they have remained fairly constant from 1986 to 2006.

3.3.2 Environmental Consequences

3.3.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to geology and ground water quantity.

3.3.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be a minor change in present conditions and **minor effect** to ground water quantity.

None of the recharge from snowmelt and runoff from the Yellowstone Plateau or from the rivers and streams flowing through and past the project area would be reduced or affected by project installation. These are the primary recharge sources for the aquifer in this area.

However, installation of the proposed project would reduce a minor amount of total water available for aquifer recharge in the area by eliminating availability of that portion of water that is currently delivered through the open ditch irrigation system. Under current conditions, direct precipitation accounts for about 20.65 inches of total water per year available for vegetation and evaporation (evapotranspiration or ET), runoff, and seepage or recharge to ground water. Evapotranspiration in the delivery ditches uses a very minor part of the water (about 0.01 acre-foot/acre averaged over the project area total acres). Irrigation canal seepage and ET together are about 0.59 acre-feet per acre of project area (3,600 acre-feet of water over 6,129 acres). The amount of water loss that would be eliminated with installation of the proposed project is about 90 percent of this and is about 0.53 acre-foot per acre of project area. Of this 0.52 acre-feet or about 6.2 inches of water per acre would be eliminated from available ground water recharge. This is about 23 percent of the water available for recharge from direct precipitation and irrigation system losses.

Based on observed seasonal water fluctuations in one well within the project area, it may be reasonable to expect that wells in the project area would experience a total lowering of the water depth. The observed well reflects an average annual fluctuation of about 12 feet. If the fluctuation results from a combination of climatic and irrigation flow variation, then a reasonable conclusion may be that about 23 percent of the fluctuation is attributable directly to the irrigation system seepage.

The effect on individual wells would vary depending on where they are located in relationship to the delivery system, however, average effects may be between 0 and 5 feet.

3.4 SURFACE WATER QUALITY

3.4.1 Affected Environment

The Idaho Department of Environmental Quality (IDEQ) is the state agency primarily responsible for water quality in Idaho's rivers and lakes. Section 303(d) of the Federal Clean Water Act requires states to list water bodies that are impacted by one or more pollutants. These

water bodies can not meet water quality standards for designated uses despite point source technologies. The Henry's Fork River is designated for domestic water supply, cold water biota, salmonid spawning, and primary and/or secondary contact recreation. Adjacent to the Project Area, the Henry's Fork is also a state-designated Recreational Waterway (IWRB 1992) and a Special Resource Water (IDEQ 1998). These designations provide protections to preserve outstanding or unique characteristics of water bodies. Most of the other water bodies within the project area are "undesignated." Undesignated water bodies are presumed to support cold-water biota and primary or secondary contact recreation unless IDEQ determines otherwise (IDAPA 58.01.02.140). All segments are designated for the statewide uses of agricultural and industrial water supply, wildlife habitat, and aesthetics.

The most current approved listing of impacted Idaho water bodies is presented in the *2002 305b/303(d) Integrated Report* (IDEQ 2006). Listed streams are required to have a total maximum daily load (TMDL) established within certain dates, or basin assessments demonstrating that beneficial uses are fully supported and therefore do not require TMDL development. An assessment of the Upper Henry's Fork River subbasin conducted by IDEQ (1998) concluded that the water quality of the subbasin was "generally good." Based on limited biological assessments, IDEQ found that the majority of streams were in full support of the beneficial uses. However, streams within the Project Area were not assessed due to their intermittent nature and lack of easy access. No assessment has been conducted to date of the Lower Henry's Fork subbasin.

3.4.2 Environmental Consequences

3.4.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to surface water quality.

3.4.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be no change in present conditions and **no effect.**

Loading estimates for the Project Area were developed using the WinEPIC (Windows version 2, Erosion-Productivity Impact Calculator, Texas A&M University) model. WinEPIC is designed for small watershed applications and utilizes an enrichment ratio and sediment delivery ratio based on delivery to the small watershed outlet (i.e., directly adjacent to a water body such as a ditch, drain or first-order tributary). Sediment losses ranged from 0.5 t/ac to 1.5 t/ac for sprinkler irrigated cropland, and depended on type of irrigation system and level of management. Total phosphorus loss ranged from 0.8 to 1.5 lbs/ac. The difference in range of values would represent potential improvement with the project through the application of nutrient and irrigation water management. Sediment and phosphorus loads to the Henry's Fork River would depend on total irrigated acreage and the average sediment delivery ratio (SDR) for the Project Area. Actual loads would not be expected to impact designated beneficial uses.

Estimated loads based on WinEPIC modeling and estimated SDR are approximately 2,000 tons

of sediment and 2,000 lbs of phosphorus from Project Area cropland, prior to the project. This does not include sediment yield from bank erosion of canals and laterals. With the project and the subsequent elimination of irrigation outflow to Henry's Fork River, loads would be reduced, resulting in a slight benefit to surface water. However, there is no TMDL for the Henry's Fork River and beneficial uses within the subbasin are fully supported. The project would not impact this status.

According to eastern Snake River Plain modeling work (Johnson et al 1999), approximately 20% of diverted water within the project area would be return flow to surface water. Of that, approximately 40% is via direct outflow and the remainder is subsurface flow. A slight reduction in surface water return flows to Henry's Fork River as a result of the project would not be expected to impact surface water quality, as this return flow is a very small percentage of river flow.

3.5 GROUND WATER QUALITY

3.5.1 Affected Environment

The geology of the Project Area is characterized by fractured basalt and rhyolite tuff, and much of the area is underlain by a large zone of perched groundwater associated with rhyolite and basalt flows and interbedded sediments. The shallow aquifer is highly vulnerable, and groundwater is nitrate-impaired. The Project Area lies wholly within the Ashton Nitrate Priority Area, currently ranked eighth on the IDEQ list of twenty-five priority areas. From 1990 to 2003, there has been a considerable increase in median nitrate values in the area (Neely 2005). Water quality monitoring by ISDA from 1998-2002 showed an average nitrate level of 7.0 mg/L in wells within the Project Area, with values ranging from a low of 0 to a high of 24 mg/L. Over 75% of wells exceeded 5 mg/L and 23% exceeded the drinking water standard of 10 mg/L. Some pesticides have also been detected in area wells, most notably metribuzin and prometon. The wells providing drinking water to the city of Ashton have shown elevated nitrate levels, but have not exceeded 10 mg/L to date. A ground water quality management plan for the Ashton Nitrate Priority Area is scheduled for completion by IDEQ in 2006.

Groundwater flow direction in the Project Area is toward the southwest and west. Ground water flow west of the Project Area is west and then north in the portions east and south of Ashton (IDEQ 2001). Based on work associated with the Eastern Snake River Plain modeling, ground water levels appear to have decreased slightly (approximately 10 feet) since 1985 (Shaub 2001). Seasonal ground water level fluctuations have been reported in area wells (IDEQ 2001), presumably influenced by irrigation water application and canal/ditch seepage losses. Seepage losses are considerable in the Project Area, accounting for approximately 38% of water diverted for use in the Project Area. Primary sources of nitrate in the project area are nitrogen fertilizer, animal manure, and legume crops, and isotope testing confirmed that the majority of wells tested showed commercial fertilizer as the most prominent source of elevated nitrates (IDEQ 2001). The project area represents a major "area of influence" for the two Ashton city wells.

3.5.2 Environmental Consequences

3.5.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to ground water quality.

3.5.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be a slight change in ground water quality conditions and a **minor effect**.

The WinEPIC model was used to estimate nitrate losses from the bottom of the rooting zone for various cropland scenarios. Average annual nitrate losses ranged from 2 – 4 lb/ac on dry cropland, but primarily occurred as pulsed events from heavy snowpack melt-off approximately once in five years (based on a 50-year simulation). Losses from irrigated cropland averaged 10 to 20 lb/ac annually depending on system type and level of management. The difference in range of values would represent potential improvement with the project through the application of nutrient and irrigation water management within the project area.

Impact to ground water quality as a result of the project is not easily determined. Irrigation water management and nutrient management implemented on project area cropland would result in a load reduction to the aquifer of approximately 50,000 lbs of nitrate annually. However, the project would also eliminate some recharge to the aquifer by eliminating canal/lateral seepage losses. Based on well monitoring data there is a quantifiable impact of this seasonal recharge to water levels and nitrate concentrations in some area wells. Several wells within the project area demonstrate a seasonal fluctuation in nitrate concentration. The short-term impact from the project may be increased level of nitrates in some area wells until the aquifer re-equilibrates to new hydrological conditions. Assuming that a portion of water savings is applied to the project area annually for irrigation purposes and that irrigation water and nutrient management would be adopted by project participants, the long-term impact of the project would most likely be a reduction in nitrate loading and reduced levels of nitrate in wells.

3.6 WETLANDS

3.6.1 Affected Environment

Wetlands are water-dominated areas such as swamps, bogs, marshes and seeps. They are complex ecosystems that provide many ecological, biological, and hydrologic functions. Wetlands in the Marysville project area include palustrine emergent saturate and seasonally flooded (PEMB and PEMC), palustrine scrub-shrub (PSSC) and palustrine aquatic bed (PABH) wetlands. Narrow riverine (RSB) wetlands dissect the surrounding saturated and seasonally flooded wetlands in the lower reaches of the project area.

Wetland functions associated with the Marysville wetlands include:

Removal of nutrients and sediments by plant life, adsorption, and deposition

Maintenance of native plant and animal resources
Discharge of groundwater supplies
Temporary flood storage and release

Natural wetlands in the project are dominated by native sedges, rushes and willow species. Artificial wetlands are dominated by reed canarygrass and isolated areas of native shrubs (hawthorn, dogwood and willow species).

Hydrology for these wetlands is connected to both natural groundwater discharge and surface water runoff and through the existing irrigation system on the surrounding farmlands. Any wetlands in the eastern half of the project area (east of Marysville) are typically present due to the irrigation system (delivery canals) associated with farming activities. Wet areas in the eastern portion of the project that meet wetland definition are considered artificial wetlands (AW). Most delivery canals are considered other waters (OW) of the United States and not considered a wetland.

Wetlands from Marysville west are considered natural wetlands resulting from groundwater discharges. Groundwater discharges were evident in every season of the year. These wetlands are typically grazed with sedges or in native trees and shrubs. The wetlands west of Marysville receive excess irrigation water when not used by the agricultural community.

Wetlands in the project area were inventoried using US Fish and Wildlife Service National Wetland Inventory Maps, black and white aerial photography and field ground truthing for visible signs in the field.

Acres and classification of wetlands and other waters inside the project area or within the area of influence of project actions are as follows:

Inside Project Boundaries:

Palustrine emergent, saturated and seasonally flooded, (PEMB and PEMC) – 116 ac
Palustrine aquatic bed (PABH) – 2 acres
Palustrine scrub-shrub (PSSC) - 4 acres
Palustrine scrub-shrub artificial (PSSCr) – 6 acres
Riverine (RSB) – 1.7 acres
Other waters (OW) – 26 acres

Outside Project Boundaries:

Palustrine emergent saturated, seasonally flooded and semi-permanent flooded (PEMB, PEMC and PEMF) - 240 acres
Palustrine scrub-shrub (PSSC) - 15 acres
Palustrine aquatic bed (PABH) - 2 acres
Palustrine emergent seasonally flooded artificial (PEMCr) - 2 acres
Riverine (RSB) - 1.7 acres

3.6.2 Environmental Consequences

3.6.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to wetlands.

3.6.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be a slight change in wetland conditions and **no net effect**.

Natural wetlands in the project area receive water from the discharge of groundwater at the town of Marysville and to the west. These natural wetlands historically receive surface flows from excess irrigation water use during the growing season. The Proposed Action Alternative would reduce the amount of surface irrigation return flows that outlet into these natural wetlands. The size and complexity of natural wetland types would not change due to project actions. The groundwater discharge is assumed to continue at current levels. There would be a slight reduction of water to the wetland system with the elimination of irrigation return flows at Marysville.

Although most of the existing irrigation delivery system is considered non-wetlands or Other Waters, a few acres of artificial wetlands are associated with the irrigation delivery system in the project area. Approximately 5 acres of artificial wetlands considered palustrine scrub/shrub wetlands would be lost due to the project actions. Five acres of palustrine scrub/shrub wetlands would be planted associated with the irrigation regulating reservoir included in the Proposed Action Alternative. The tree and shrub plantings would replace functions and values lost due to the decommissioning of the existing irrigation delivery system.

3.7 FISHERIES

3.7.1 Affected Environment

The Henry's Fork and the Falls Rivers are historic Yellowstone Cutthroat trout / Mountain whitefish habitat. The Snake River system above Salmon Falls is devoid of native rainbow trout and anadromous salmonids. In the early 20th century, Brook trout, Brown trout and Rainbow trout were introduced. Rainbows and Yellowstone Cutthroat trout are capable of interbreeding and in some places there are populations of Cutthroat/Rainbow hybrids. Other fish in the system include Long-nosed Dace, Mottled sculpin, and the Piute sculpin.

Trout generally migrate upstream to breed in the first and second order streams. Before winter they migrate downstream to larger waters. Fish movement into larger waters generally results in larger fish as well as a more genetically robust population. Barriers to migration seriously restrict trout populations by isolating fish into subpopulations.

In the Henry's Fork and the Falls Rivers adjacent to the project area there are two natural and one manmade barrier to upstream movement. Fish can swim up the Falls River as far as Sheep

Falls and upstream to Mesa Falls in the Henry's Fork River. The Ashton Dam west of Ashton is also a barrier to fish movement. The Idaho Department of Fish and Game operates a fish hatchery to mitigate the effects of the dam.

Water for the Marysville canal system and the hydroelectric power plant is diverted from the Falls River by the same structure and share 7 miles of canal to the power plant inlet. Ida-West Energy Company operates a fish screen at this structure under the conditions of a FERC permit.

3.7.2 Environmental Consequences

3.7.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative there would be no change in present conditions and **no additional effect** to fisheries.

3.7.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be a slight change to in-stream flow and water quality conditions and **no effect to fisheries**.

The proposed project action would not create any additional barriers to migration in the adjacent streams.

Streamflow alteration can also affect fish. In the Henry's Fork River, the historic irrigation return flows from the project area is small compared to river flows during the irrigation season resulting in negligible hydrology impacts to the river. In the Falls River, plans are to hold unused water in Grassy Lake Reservoir until the later part of the irrigation season in case there are irrigation short falls in the agriculture sector. Irrigation short falls generally happen in 7 out of 10 years. In the more severe water short years all the saved water (4,400 acre feet) could be released in the month of September. This would be an additional discharge of about 70 cfs into the Falls River. During September the average monthly discharge from 1994 to 2005 is over 600 cfs. This increase is not likely to impact fish populations. Water not needed for irrigation would be released to Falls River from Grassy Lake Reservoir over a longer period of time (hydropower generation) resulting in a smaller discharge with a negligible hydrologic impact to the stream.

3.8 WILDLIFE

3.8.1 Affected Environment

The project area is intensively managed for crop production. Habitat is provided by annually tilled crops, hayland and pastureland. Annually tilled crops such as wheat, barley, and potatoes dominate the landscape. Hayland (alfalfa) is rotated into typical crop rotations. Smaller amounts of pastureland provide limited permanent vegetation for resident wildlife. A variety of wildlife species are found within the project area. Sharp-tailed grouse and Hungarian partridge are present year-round. Elk, white-tailed deer and mule deer can be found migrating through the project area heading for summer and/or wintering areas outside the project area. Birds of prey including the great gray owl, peregrine falcon, and bald eagles may be present during their

seasonal movements. Bald eagles are associated with the Henry's Fork and Falls Rivers which provide wintering areas. Grizzly bears and wolves may infrequently use the area though the probability of this occurring is very low due to the dominance of agricultural activity providing little or no suitable habitat.

A wildlife habitat assessment for the Marysville project was completed using Idaho NRCS Biology Technical Note 19 – Wildlife Habitat Appraisal Guide for Farmland Habitat (NRCS 2003). The Biology TN-19 is a general habitat appraisal that rates available farmland (cropland, pastureland, hayland and woodland) quantity and quality to provide habitat for wildlife.

Information was collected both in the field and office and represents the general habitat conditions for the entire project area. Since the appraisal represents average project area conditions, individual farms may have slightly different habitat.

The wildlife habitat appraisal evaluated 8 habitat elements to determine quality of existing habitat in the project area. Optimum habitat would have a maximum habitat index value of 1.0. The minimum acceptable habitat quality criteria for conservation planning activities is a habitat index value of 0.5.

The habitat elements evaluated included:

Cropland quantity	Interspersion of vegetation types
Cropland management	Water for wildlife
Herbaceous vegetation quantity and quality	Riparian areas
Woody vegetation quantity and quality	Wetland areas

The existing habitat index value for the project is 0.69. All habitat elements except woody vegetation were higher than a 0.5 value. Conservation practices that increase the amount of undisturbed herbaceous and woody vegetation distributed throughout the project area would improve habitat conditions for nesting and winter cover.

3.8.2 Environmental Consequences

3.8.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to wildlife.

3.8.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be slight changes in wildlife habitat conditions and **no net effect** to wildlife.

The impacts of project action (Alternative B) were evaluated using a habitat-based wildlife appraisal. Habitat value was initially impacted due to a projected increase in distance to cover types (e.g. interspersion) when 50% of the canals and associated buffers are lost. Also, there would be a reduction in open water due to the change of irrigation delivery system to a gravity

pipeline irrigation delivery system. Installation of Alternative B would replace the loss of habitat value by requiring individual landowners to replace lost buffers with field borders and manage borders for wildlife benefits. Approximately 15 acres of field borders would be planted by landowners who are decommissioning the canal system on their lands. The reduction in open water for wildlife would have minimal effect on large mammals and birds that would be able to utilize water associated with the existing sprinkler irrigation systems, rivers and reservoirs. A slight reduction in available wildlife water would occur where natural wetland areas exist west of Marysville. This would be due to the reduction in irrigation return flows to the natural wetlands west of Marysville during the growing season Wetlands in this area are maintained by groundwater discharges throughout the year and would continue to provide water available to wildlife.

3.9 THREATENED, AND ENDANGERED SPECIES

3.9.1 Affected Environment

The NRCS Field Office Technical Guide (FOTG) for Fremont County shows the following listed species.

Gray wolf	Canis lupus	Endangered: Experimental
Grizzly bear	Ursus arctos horribilis	Threatened
Canada lynx	Lynx canadensis	Threatened
Bald eagle	Haliaeetus leucocephalus	Threatened
Whooping crane	Gurus americana	Endangered
Ute ladies' tresses	Spiranthes diluvialis	Threatened

The IDFG Conservation Data Center database was searched to determine if listed threatened and endangered species were identified in the project area.

The gray wolf is classified as an experimental non-essential population in Idaho south of Interstate 90. Wolves typically occupy higher elevation areas during the summer and follow big game animals to lower elevation winter ranges.

The grizzly bear is a large animal predator typical of the Yellowstone plateau. There are no sighting records in or close to the project area. The IDFG CDC database identifies bear habitat north and east of the project area. The open farm fields within the project area do not meet the habitat requirements of the grizzly bear.

The Canada lynx is a highly mobile animal that inhabits large territories in remote areas. According to the IDFG CDC database the only sighting record is across the Henry's Fork River from the project area in the Sand Creek drainage. The project area does not support critical habitat for the Canada lynx.

Bald eagles are known to nest in the Henry's Fork and Falls Rivers watersheds. There is a known active bald eagle nest on the Henry's Fork River approximately one mile north of the North-North Lateral. Project actions would get no closer than one mile to any active nests. No

physical disturbance to the existing nest trees would occur and project construction is proposed to occur in the fall (September-November), outside the bald eagle nesting period. The Henry's Fork and Falls Rivers are also wintering bald eagle areas. Wintering bald eagles use the fish prey base in the Falls River and Henry's Fork River throughout the winter.

Historically the whooping crane has been a rare transient in Idaho. The closest recorded sighting was on the Bear River in 1834. During the 1980s and 90s there was an experimental population at Grays Lake; however, these birds were removed when they failed to become a breeding population. There are no resident whooping cranes breeding in Idaho.

Ute ladies ' tresses is the only federally protected plant species that may occur in or near the Project Area. This was listed in 1992 due to current and potential threats to the species' population and habitat from increasing urbanization, water diversions, alteration and management of stream systems that result in a decrease in stream dynamics, increasing recreation, and invasion of habitat by exotic plant species. The IDFG CDC database identified a population of Ute ladies' tresses about 8 miles from the project area at a site on the west side of the Henry's Fork River near the confluence with the Falls River.

3.9.2 Environmental Consequences

3.9.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative there would be no change in present conditions and **no additional effects** to threatened and endangered species.

3.9.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be **no effect on species listed under the authority of the Endangered Species Act.**

Alternative B has a very low potential to negatively impact any of the endangered species potentially occurring in the vicinity of the proposed project. This is primarily due to the low probabilities of any of the species occurring in the project area during construction.

Ute ladies' tresses are known to be at a site on the west side of the Henry's Fork River near the confluence with the Falls River about 8 miles away from the project area. The effects of any hydrologic manipulations in the project area would be nullified by the distance. No Ute ladies' tresses have been found in the project area.

There are no resident whooping cranes breeding in Idaho. The Proposed Action Alternative would have no effect on whooping crane habitat.

There is a known active bald eagle nest on the Henry's Fork River approximately one mile north of the North-North Lateral. Project actions would occur no closer than one mile to any active nests. No physical disturbance to the existing nest trees would occur and project construction is proposed to occur in the fall (September-November), outside the bald eagle nesting period. Wintering bald eagles use the fish prey base in the Falls River and Henry's Fork River

throughout the winter. Fish species and populations in the project area would not change due to the Proposed Action Alternative. The Proposed Action Alternative would not alter the riparian forest community along the Henry's Fork or Falls Rivers. Project construction would not be closer than 1 mile from the Henry's Fork and Falls Rivers and there would be no effect to this species.

It is possible that a wolf could wander through the area; however, none have been sighted or tracked in the immediate vicinity of the project area. It is unlikely that gray wolves occur in the project area and the short construction period and limited scope of the project would have no effect on this species.

3.10 RECREATION, VISUAL RESOURCES AND AESTHETICS

3.10.1 Affected Environment

Recreation within the project area is limited by the intensive agriculture land use. Opportunities for hunting upland game birds within the project area are limited by the small amount of cover in the fall. There may possibly be upland bird hunting along the existing canals.

There are opportunities for photography from roadways and scenic enjoyment. The landscape of the project area frames the agricultural nature of the city of Ashton.

Ashton is a gateway town for the Yellowstone plateau via Highway 20. The Highway 20 bridge over the Henry's Fork River is a visual transition from farmland to the Yellowstone caldera.

3.10.2 Environmental Consequences

3.10.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative there would be no change in present conditions and **no additional effects** to recreation, visual resources or aesthetics.

3.10.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be slight changes in recreation, visual resources or aesthetics conditions and **no net effects**.

The project would be installed entirely on private land, no public recreation lands would be impacted. Water based recreation in the Henry's Fork and Falls Rivers would be unchanged as changes in the river flows would be very slight.

Upland habitat along the existing canals would be slightly impacted by the project. Due to these slight impacts, upland bird hunting opportunities may be transferred from one area to another. This change would be negligible as landowners indicate there is very little hunting along the canals.

3.11 WILD AND SCENIC RIVERS

There are six designated wild and scenic river segments in Idaho. None of these are in the project area.

3.11.1 Affected Environment and Environmental Consequences

There are no streams designated under the authority of the Wild and Scenic Rivers Act in the watershed of the Henry's Fork River and therefore, **no effect** from either alternative.

3.12 RIPARIAN VEGETATION

3.12.1 Affected Environment

Riparian plant communities along the Henrys' Fork and Falls River are dominated by cottonwoods, willows and alders and border the north and south boundaries of the project area. A narrow unnamed creek and associated riparian area runs west from Marysville and outlets into the Henry's Fork River. The irrigation delivery system does not support a functioning riparian area. The riparian systems along the Henry's Fork River, Falls River and the unnamed creek west of Marysville have several functions including nutrient cycling, retention of particulates, energy dissipation, organic carbon export, maintenance of native plant communities, and maintenance of vertebrate and invertebrate communities.

3.12.2 Environmental Consequences

3.12.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to riparian vegetation.

3.12.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be slight changes in riparian vegetation conditions and **no net effect**.

The project actions would result in a negligible reduction in the amount of irrigation return flows delivered to the Henry's Fork River. The elimination of irrigation return flows to the Henry's Fork would result in a less than 1% reduction in stream flow to the river which would not change the existing riparian functions. The Falls River may experience increased flows due to less water being diverted for irrigation of agricultural areas. Water stored in Grassy Lake Reservoir that is not needed for agricultural production would be released into Falls River probably in the fall of the year. This increase could be as high as 13%. It is doubtful the riparian areas along Falls River would experience any changes to functions or values. The riparian area associated with the unnamed creek through Marysville would experience a slight reduction in surface flow due to the elimination of irrigation return flows during the growing season. The existing natural wetlands would continue to discharge water into the creek and it is doubtful a change in the riparian plant community would occur.

3.13 AIR QUALITY AND NOISE

3.13.1 Affected Environment

While specific air quality monitoring is not in place for the project area, Fremont County in general is not within a PM10 non-attainment area or R2.5 area of concern according to IDEQ 2004 statewide air quality planning. The project area is rural and sparsely populated with few pollution sources. Dry, windy conditions can contribute to air-borne fine particulate matter when farm fields are tilled.

There are no noteworthy noise generators or noise receptors in the project area. There are a few widely scattered farm residences and schools in the general project area within a mile of the construction site. Table 6 provides a general guide to noise levels from common sources for comparison. The project area background noise is likely in the 10-30 decibel range.

Table 6: Decibel Levels of Particular Noises for Comparison Purposes

Noise Level/Threshold	Decibels (dBA)
Jet Engine (close up)	160
Threshold of pain	130
Jet flyover at 1,000 feet	100-120
Gas lawn mower at 100 feet	90-100
Normal speech at 3 feet	60-70
Quiet urban daytime	50-60
Library	30-40
Quiet rural nighttime	10-20
Threshold of hearing	0-10

Source: www.coolmath.com, http://shpna.org/caltrain/caltdbexmpl.htm

3.13.2 Environmental Consequences

3.13.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to existing air quality or noise in the project area.

3.13.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be minor short-term effect on present conditions having **no effects** to air quality and noise.

Truck traffic on existing unimproved roads leading to the project site would be expected to increase the amount of air-borne fine particulates during the construction phase. Best Management Practices (BMPs) would be incorporated during construction to minimize dust. This usually entails wetting approach roads as necessary, covering exposed soil stockpiles, and seeding disturbed areas as soon as possible following disturbance. Heavy equipment use also would cause short-term, localized increases in exhaust. However, these emissions would be negligible and would not change the air quality attainment classification for the area.

Heavy equipment use would also cause short-term, localized increases in noise during the

construction phase. Local ambient noise levels are low but would increase to around 80-90 db for short periods in the construction zone and along the existing roads through farms adjacent to the site. These noise levels would be of short duration and only during daylight hours. There are no sensitive noise receptors, in the project vicinity. There would be no impacts from the temporary increase in noise during construction.

3.14 CROPLAND

3.14.1 Affected Environment

Irrigated cropland is used primarily to produce malt barley, spring wheat and seed potatoes. Smaller acreages are used to produce alfalfa, canola, mustard and peas. The common three-year crop rotation consists of spring wheat followed by malt barley followed by seed potatoes.

3.14.2 Environmental Consequences

3.14.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to cropland.

3.14.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be slight changes to present conditions and **minor beneficial effects to cropland.**

Most of the 6,130 acres would be converted from pump and motors to a gravity pressurized system. Conversion from an open ditch delivery system to a pressurized system may extend the irrigation season which could increase yields during low water years. An increase in grain yield from 50 to 100 bushels 1 year out of 10 is expected. It is also anticipated that a 10 percent reduction of inputs or production costs (fertilizer, pesticides, fuel) would occur as a result of squaring up and combining fields. Additional crop production may occur on 70 acres of canals converted to farmland.

3.15 SMALL PASTURES

3.15.1 Affected Environment

There are approximately 15 non-agricultural producers with horse pastures, generally less than 5 acres in size with water rights. These are primarily located in the town of Marysville, with a few scattered throughout the project area. The total acreage of small pastures amounts to about 40 acres. In Marysville, there is a small network of ditches that supply water to these pastures for both sprinkler and flood irrigation systems.

3.15.2 Environmental Consequences

3.15.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effect** to small pastures.

3.15.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be slight changes in present conditions and **minor beneficial effects** to small pastures.

The Marysville Irrigation Company has agreed to provide all of the small pasture landowners the water needed from the Proposed Action Alternative pipeline, to supply their current irrigation system. This will be accomplished by releasing water from the pipeline into the existing ditch network or making an arrangement for the landowners to connect directly into the pipeline system, taking advantage of gravity pressure. Connection to the system and delivery to individual small pastures for irrigation use is not part of the project cost.

Installation of a pressurized system could allow for the development of urban/rural water hydrants for fire protection.

3.16 SOCIOECONOMIC CONDITIONS AND OUTLOOK

3.16.1 Affected Environment

Fremont County was the first county established after Idaho was admitted to the Union. It was named for John C. Fremont, the pathfinder who surveyed the West for the Government. The estimated population in 2005 was 12,242. This was an increase of 3.6% from the 2000 census. St. Anthony is the County Seat and largest municipality in the county with a population of 3,414. Other smaller communities include Ashton, Chester, Drummond, Island Park, Marysville, Parker and Warm River. Marysville lies within the boundary of the project. Ashton lies just outside to the west of the project area.

Fremont County is an agricultural area. Soil and climatic conditions are ideal for the production of seed potatoes, malt barley, canola, spring wheat and alfalfa. The economy is also supported by Local, State and Federal government, service industry, retail trade, tourism and construction.

Land ownership in the county is mixed, including private, municipal, county, state and federal land.

Fifty-seven percent of farm operators are farmers by occupation. The remaining operators have off-farm jobs as their primary occupation. The majority of operators are male; women make up 10.0 percent of the total. Ninety-eight percent of all operators are white. Non-white operators are of Hispanic, American Indian and Asian background.

Farm size ranges from less than 10 acres to more than 1,000 acres with an average of 555 acres.

Agricultural land in the watershed is a mix of cropland, range, pasture and hayland. Land users in the watershed utilize Environmental Quality Incentive Program (EQIP), Conservation Reserve Program (CRP), Continuous CRP, Conservation Security Program (CSP) and other programs to implement conservation plans.

Farm size and market value of production in Fremont County is down over the past several years. Government payments to farmers are up for the period. Farm sales range from less than $1,000 to more than $500,000 per year. Seventy-eight percent of the farms reported sales of less than $50,000 per year. Farm sales in 2002 were $72,029,000. Sales from crop production were $63,936,000 and livestock sales were $8,093,000.

The recreational fisheries of the Henry's Fork watershed, of which the Fall River is an integral part, generate an estimated $29 million in income to the local economy and support, directly or indirectly, more than 800 jobs (Loomis, 2005).

The number of farms and their size is impacted by subdivision of farm land. Land adjacent to cities is being developed in 1/3 to 1/5 acre lots. Rural developments are larger with acreages of 5 to 20 acres. These rural acreages may be used for production of hay or small grains. It is not uncommon see several horses or other livestock on pasture.

The per capita personal income and median home value for Fremont County are less than the rest of Idaho. The percent unemployment and percent below poverty level are higher in Fremont County than in the rest of Idaho as shown in Table 7.

Table 7: Economic Profile

	Fremont County	Idaho	United States
Per Capita Personal Income (2001)	$16,800	$24,500	$30,400
Median Home Value (2000)	$82,200	$106,600	$119,600
Percent Unemployment (2002)	5.9%	5.4%	5.8%
Percent Below Poverty Level (2003)	13.2%	11.8%	12.5%

3.16.2 Environmental Consequences

3.16.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to socioeconomic conditions and outlook.

3.16.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be slight changes in present conditions and **minor beneficial effects** to Socioeconomic conditions and outlook.

This alternative is a cooperative group project among 53 landowners and the Marysville Irrigation Company to install three gravity irrigation water pipelines to serve 6,130 acres of irrigated cropland. The total cost of the project is estimated at $3,813,400.

Most of the 6,130 acres would be converted from pump and motors to a gravity pressurized system. Conversion to gravity pressure will save an estimated 1,700,000 kW-hr/yr of electricity. This energy can be placed on the electrical grid for use elsewhere. Conversion from an open ditch delivery system to a pressurized system may extend the irrigation season which could increase yields during low water years. An increase in grain yield from 50 to 100 bushels 1 year out of 10 is expected. It is also anticipated that a reduction of inputs (fertilizer, pesticides, fuel) would occur as a result of squaring up and combining fields.

Additional water may be used for power production. As much as 4,280 acre-feet of water could be available to the existing hydro plant annually for additional generation of hydroelectric power and associated increased income.

The proposed project will require a substantial expenditure of public funds and it is recognized that the potential exists for the conversion of agricultural land to residential or commercial after the proposed project is installed. The expenditure of public funds implies a commitment and a responsibility from agriculture to maintain the land in agricultural production.

The proposed project should help these acres become more profitable by reducing operating costs and reducing water short years thus insuring that they stay in production. By improving the landowner's economic situation, they will be less likely to sell for development. Furthermore public funds will only be used for agricultural purposes and any costs associated with non-agricultural uses will be bourn by those users.

3.17 ENVIRONMENTAL JUSTICE

In the past decade, the concept of Environmental Justice has emerged as an important component of Federal regulatory programs, initiated by Executive Order No. 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations. This Executive Order directed each Federal agency to "make achieving environmental justice by avoiding disproportionately high or adverse human health or environmental effects on minority and low-income populations" a part of its mission. EO 12898 emphasized that Federally recognized Native tribes or bands are to be included in all efforts to achieve environmental justice (Section 6.606).

3.17.1 Affected Environment

The demographics of the affected area were examined to determine the presence of minority populations, low-income populations, or tribal peoples in the area potentially impacted by the Proposed Action Alternative. The race and ethnic profile of Marysville and Ashton City from the 2002 census is presented in Table 8. Draft EAs were sent to Tribal contacts that are listed in Section 5 - Distribution List for review and comment.

Table 8: Race and Ethnicity Profile of Marysville and Ashton City, Idaho

Race or Ethnicity	Percentage of Population
White	98 %
American Indian or Alaskan Native	< 1 %
Asian	< 1 %
Hispanic or Latino* (of any race)	1 %

Source: 2002 Census
*Percentage adds to more than 100% because Hispanic and Latino is a category of ethnicity and includes more than one race category (black, white, etc.)

The racial and ethnic profile of Marysville and Ashton City is generally the same as Fremont County and the State of Idaho as a whole.

3.17.2 Environmental Consequences

3.17.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative conditions would remain the same and there would be **no disproportional effects** to low income or minority populations.

3.17.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be no change in present conditions and there would be **no disproportional effects** to low income or minority populations.

3.18 CULTURAL AND HISTORICAL RESOURCES

The National Historic Preservation Act (NHPA) requires the NRCS to consider the effects of providing program assistance on historic properties. Historic properties are cultural resources that are listed or potentially eligible for listing on the National Register of Historic Places. Direct and indirect effects to cultural resources in the project area were determined by applying NHPA's criteria of effect. NHPA defines an adverse effect as one that diminishes the integrity of a historic or prehistoric site's location, design, setting, materials, workmanship, or association. Adverse effects include physical destruction, damage, or alteration to all or part of a site, and/or the introduction of visual, audible, or atmospheric elements that are out of character with the site, or alter its setting (36 CFR 800.5[a][2][i-vii]). Criteria of effect are only applied to those sites determined eligible or potentially eligible for listing on the National Register. Any alternative defined as an *undertaking* under 36 CFR Part 800.16 has the potential to impact both known and unknown cultural resources.

3.18.1 Affected Environment

This region contains prehistoric and historic sites that contribute to our understanding of the historic lives and environments of American Indians and other peoples. Although no prehistoric sites have been located in the affected area, nearby archaeological sites show that this area has been continuously inhabited for over ten thousand years. Early in the nineteenth century, fur trappers, missionaries and other non-native people began to arrive in this area. However, large

scale settlement did not occur until the late 1880s, with the arrival of homesteaders and agricultural speculators.

Along with the Marysville Canal, several other cultural sites related to agricultural development and other historic activities have been located in this area. These sites include the town site of Marysville (IHSI 43-000249), the historic grade of the Eastern Idaho Railroad-Yellowstone Branch (10FM209), and the Mesa Falls Highway – State Highway 20 (10FM368).

The project area has been completely inventoried by an archaeologist meeting the Secretary of the Interior's professional standards. Previously recorded sites were relocated and new sites recorded and evaluated for National Register eligibility and potential project impacts. A report of this survey was made available to the State Historic Preservation Office.

3.18.2 Environmental Consequences

An alternative defined as an *undertaking* under 36 CFR PART 800.15 has the potential to adversely impact both known and unknown cultural sites.

Three of the previously recorded sites, the Eastern Idaho Railroad grade, the town site of Marysville, and the Mesa Falls Highway, would not be adversely impacted by any of the project alternatives. The railroad grade has previously been abandoned and returned to cultivated cropland through the project impact area. The irrigation system already crosses beneath the Mesa Falls Highway in an existing pipeline and would require no additional construction. The town site of Marysville was determined to be outside the area of potential effect (APE).

Features of the historic Marysville Canal within the project APE were recorded and evaluated during the inventory. It has been determined by the Idaho NRCS, in consultation with the Idaho State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP), that the Marysville Canal is eligible for listing on the National Register of Historic Places; and, significant features that contribute to this canal's eligibility are located within the APE.

No other archaeological sites, historic features, or other cultural resources are located in the project's area of potential effects.

3.18.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to cultural resources.

3.18.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, the potential to cause an effect to the Marysville Canal has been resolved by MOA M-0211-34, resulting in a **no effect** determination for this alternative.

Alternative B would impact a feature of the Marysville Canal. A 1911 wood and concrete

headgate structure located at the split between the North-North Lateral and the North Lateral would be removed to allow for the construction of a water holding area. This action's potential to cause an effect has been resolved with the Idaho SHPO and the ACHP through a Memorandum of Agreement (M-0211-34). This resolution requires complete recordation of this feature with photographs, maps, and measured drawings prior to project implementation. This documentation was collected during the project inventory. SHPO and the ACHP will be provided with a final report with the required information along with a narrative history of the Marysville Canal.

3.19 TRANSPORTATION, PUBLIC UTILITIES AND ACCESS

3.19.1 Affected Environment

The project area is directly served by a series of secondary roads surfaced in asphalt or gravel. There are also native surfaced farm access roads and driveways in the project area. Highway U.S. 20 runs north and south on the west end of the project area and State Highways 47 and 32 cross through the project area. A spur railroad line runs south from Ashton to Victor through the project area, and was abandoned in 1990. Another line abandoned in 1979 runs from Ashton to West Yellowstone, Montana. Local fire and emergency services cover the general project vicinity and there are local utilities in the project area including water, telephone and electric lines.

3.19.2 Environmental Consequences

3.19.2.1 ALTERNATIVE A – NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT ACTION)

Under Alternative A, the No Action Alternative, there would be no change in present conditions and **no effect** on the transportation and access system.

3.19.2.2 ALTERNATIVE B – PROPOSED ACTION - REPLACE THE OPEN DITCH IRRIGATION SYSTEM WITH A GRAVITY PRESSURIZED IRRIGATION DELIVERY SYSTEM

Under the Proposed Action Alternative, there would be **slight short-term effects** in present condition but there would be **no long-term effects** to transportation, public utilities or access.

The Proposed Action Alternative would primarily affect the secondary gravel and asphalt roads. At the point where a buried pipeline crosses a road, the pipe would be approximately four feet below the surface of the road. If the loads traveling the road are large enough, the plastic pipe would be placed in a steel 'carrier pipe' to prevent crushing or deflection.

Preliminary investigation indicates there are three road crossings planned for the North-North pipeline, five for the North pipeline and eight for the Turkey Track pipeline. Four of the Turkey Track pipeline crossings are under Highway 47, but these would be accomplished at existing culverts resulting in no cuts to the road surface. There is one railroad bed crossing in the North pipeline and two crossings in the Turkey Track pipeline.

Construction of a pipeline road crossing would require the road to be closed for a period of time. A trench would be cut in the road, the carrier pipe and plastic pipeline would be placed and

select backfill would be compacted in shallow lifts up to the road grade. Typically, the road surfacing would be delayed and all of the road crossings would be re-paved or re-graveled at one time. The road would typically be closed for less than four hours.

Rail bed crossings would not generate any impact to the transportation network as all rail lines in the area are abandoned. The rail bed would be left in condition similar to before construction. Highway or road crossings that utilize existing culverts would not generate any impact to the transportation system. Similarly, many of the proposed water delivery points are the same as the existing system, so access under driveways and secondary roads already exists.

Secondary road and tertiary farm roads and driveways would be impassable for the two to six hours required to bury the pipe. Since the roads exist in a square mile grid, closing a section of road does not limit access for emergency vehicles or routine traffic. Although none were identified, if a road crossing would disable a sole access to a home, farm or destination, temporary access would be maintained during construction.

The presence of heavy machinery (typically track hoes, dump trucks, bulldozers and delivery semis) would disrupt normal traffic flow. Since most of the construction is across farm fields, most of the disruption would be for a very short time during mobilization and demobilization.

All the secondary roads currently carry heavily loaded farm produce trucks, as well as oversize machinery such as combines and potato diggers. No access problems, or road damage problems are anticipated.

Pipeline construction would need to be carefully planned around any buried and overhead utilities. The contractor would be made aware of their responsibility for locating any utilities and assuring their safety during construction. Landowners in the project area would be enlisted to help locate on-farm utilities. A contingency plan would be developed between the project sponsors and the contractor in case of a utility breach.

Additionally, since construction would occur during fall and winter when weather may be inclement, tracking of construction mud onto the public right-of-way would need to be prevented. An erosion and sediment control plan would be necessary to ensure that the tracking of material is controlled. The erosion and sediment control plan would be prepared by the construction contractor and submitted to US Environmental Protection Agency for Phase II stormwater pollution prevention compliance. Permits are covered in detail in section 2.4.3 of this document.

3.20 SAFETY AND HEALTH

3.20.1 Affected Environment

Open ditches pose safety hazards due to the potential of falling into the water or machinery running into a ditch or canal. There is a **minor hazard** of accidental drowning in open irrigation canals. There are no known health hazards associated with the open ditches.

Pressurized pipelines pose a safety hazard in that they could rupture and expel high pressure water. There is a **minor hazard** of electrocution associated with electrical connections and panels for pumps. There is not any health hazards associated with pressurized pipelines.

3.20.2 Environmental Consequences

3.20.2.1 Alternative A – No Action Alternative (Future Without Project Action)

Under the No Action Alternative (Alternative A) there would be no change in present conditions and **no additional effects** to safety and health.

3.20.2.2 Alternative B – Proposed Action - Replace the Open Ditch Irrigation System with a Gravity Pressurized Irrigation Delivery System

Under the Proposed Action Alternative, there would be **slight beneficial effects** in present conditions but there would be **no long-term effects** to safety and health.

Installation of the Proposed Action Alternative would create a slight impact from switching from an open ditch delivery system to a pressurized pipeline delivery system. If the Proposed Action Alternative is installed, as many as 50 pumps could be removed. This would eliminate the hazard associated with electrical connections and panels.

3.21 SUMMARY OF IMPACTS

Table 9: Summary of Impacts

Concern	Alternative 1 No Action Future Without Project	Alternative 2 Gravity Pressurized Irrigation Delivery System
Air Quality and Noise	No Additional Effect	No Effect There would be minor short-term effect. Short-term increase in dust, exhaust, and noise associated with construction activities and equipment.
Cropland	No Additional Effect	Minor Beneficial Effect There would be slight changes to present condition, such as additional crop production on 70 acres of canals converted to farmable floodway, possible increased yields during low water years due to extension of irrigation season. Possible increase in grain yield from 50 to 100 bushels in 1 year out of 10. Improved farm efficiency on approximately 2,500 acres. A 10% reduction in production costs is expected on the affected acres.
Cultural and Historical Resources	No Additional Effect	No Effect The potential to cause an effect has been resolved by Memorandum of Agreement M-0211-34 between the Idaho NRCS and SHPO.
Environmental Justice	No Disproportional Effect	No Disproportional Effect
Fisheries	No Additional Effect	No Effect
Flood Plains, Flooding, Hydrology and Surface Water Quantity	No Additional Effect	No Effect: For Flood Plains and Flooding. Minor Effect: For Hydrology and Surface Water Quantity. The Proposed Action would alter the surface runoff patterns. Peak flows may be reduced up to 30%. Runoff volumes would not change, but a larger area of the landscape may be wetter during the natural runoff period.
Geology and Ground Water Quantity	No Additional Effect	Minor Effect There would be a minor change to present conditions of lowered water levels of an average of 0 to 5 feet in individual wells dependent on where they are located relative to the irrigation delivery system.

Concern	Alternative 1 No Action Future Without Project	Alternative 2 Gravity Pressurized Irrigation Delivery System
Ground Water Quality	No Additional Effect	Minor Effect There would be a slight change in present conditions. Short-term impact may be a minor increase in the level of nitrates in some area wells until the aquifer can re-equilibrate to new hydrological conditions. Long-term impact likely would be a reduction in nitrate loading and a reduced level of nitrate in wells.
Small Pastures	No Additional Effect	Minor Beneficial Effect Would provide all of the small pasture (about 40 acres) landowners, primarily located in the town of Marysville, the water needed from the Proposed Action Alternative pipeline, to supply their current irrigation system. Connection to the system and delivery to individual small pastures for irrigation use is not part of the project cost. Installation of a pressurized system could allow for the development of urban/rural water hydrants for fire protection.
Soils and Prime Farmland	No Additional Effect	No Effect
Recreation, Visual Resources and Aesthetics	No Additional Effect	No Net Effect There would be a slight change in recreation. Upland habitat along the existing canals would be slightly impacted by the project.
Riparian Vegetation	No Additional Effect	No Net Effect There would be slight changes in riparian vegetation conditions. The unnamed creek thru Marysville would have a slight reduction in surface flow during the growing season.
Safety and Health	No Additional Effect Minor hazard of accidental drowning in open irrigation canals. Minor hazard associated with electrical connections and panels for pumps.	No Long-Term Effect Slight Beneficial Effect: Removal of minor drowning hazard in project area. As many as 50 pumps could be removed. This would eliminate the hazards associated with electrical connections and panels.

Concern	Alternative 1 No Action Future Without Project	Alternative 2 Gravity Pressurized Irrigation Delivery System
Socioeconomic Conditions and Outlook	No Additional Effect	Minor Beneficial Effect There would be a slight change in present conditions. Slight impact of long-term increase in stability to the local economy due to increased farm efficiency, reduced power consumption and increased water for power generation.
Surface Water Quality	No Additional Effect	No Effect
Threatened and Endangered Species	No Additional Effect	No Effect On Species Listed under the Authority of the Endangered Species Act.
Transportation, Public Utilities and Access	No Effect	No Long-Term Effect Slight Short-Term Effect The pipeline route would cross secondary gravel and asphalt county roads in 12 locations. This crossing would require short-term traffic delays during installation and restoration of the road surface. The four crossings under Highway 47 would utilize existing culverts and would result in no cuts to the road surface. Secondary road and tertiary farm roads and driveways would be impassable for the two to six hours required to bury the pipe. Since the roads exist in a square mile grid, closing a section of road does not limit access for emergency vehicles or routine traffic. Although none were identified, if a road crossing would disable a sole access to a home, farm or destination, temporary access would be maintained during construction. There would be possible temporary interruption of electrical and telephone service during construction.
Wetlands	No Additional Effect	No Net Effect There would be a slight change in wetland condition. Five acres of artificial wetland would be replaced.
Wild and Scenic Rivers	No Effect	No Effect
Wildlife	No Additional Effect	No Net Effect There would be slight changes in wildlife habitat conditions.

4 CONSULTATION AND PUBLIC PARTICIPATION

Natural Resources Conservation Service (NRCS) policy supports and encourages public participation in planning and decision making as it relates to natural resources. Requirements for public participation are specified in the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), OMB Circular A-95, Executive Orders, Departmental Memoranda and NRCS policies.

4.1 CORRESPONDENCE & PRESS RELEASES

The Marysville Irrigation Company (MIC) used local and regional newspapers throughout the area to disseminate information on the proposed project. Press releases announced the time, location, and agenda of the official scoping meeting and invited the public to attend and provide comments.

The MIC also sent notification in the form of a letter dated August 14, 2006 to all MIC water users, as well as governments, individuals, and organizations identified jointly by the MIC and the NRCS. Along with being an invitation to the public meeting, this letter also welcomed written comments throughout the planning process. To encourage comments, either verbal at the meeting or written, a "concerns and comments" questionnaire was attached to this letter. (See Appendix A: Correspondence).

The NRCS consulted with state agencies, federal agencies, and other groups or individuals as required by the various acts and policies listed above.

4.2 PUBLIC MEETING

The MIC conducted the public meeting on August 22, 2006 at the North Fremont High School in Ashton, Idaho. This was an open meeting with formal presentations by NRCS employees followed by a comment period. Meeting facilitators made the "concerns and comments" questionnaire available and encouraged participants to complete it. The meeting was attended by representatives of the Marysville Irrigation Company, the Farmers Own Ditch Company, Bonneville Power, Falls River Electric, as well as irrigation company shareholders, local landowners and employees of the NRCS.

4.3 COMMENTS RECEIVED FROM THE PUBLIC DURING THE SCOPING PROCESS

The majority of the comments and concerns were voiced during the August 22 meeting; however, several responses were also received through letters, email and telephone.

The following concerns were identified during this scoping process, through consultation and in

NRCS Interdisciplinary Team (IDT) meetings. These concerns were evaluated and addressed during preparation of this Environmental Assessment (EA):

Impacts on aquatic and riparian habitats
Impacts to water quality
Impacts on air pollution and soil productivity
Impacts on plants, terrestrial species and habitats, and T&E Species
Impacts to historic and other cultural resources
Impacts to the local economy
Impacts to crop production
Impacts to ground water
Impacts to the Henry's Fork and Falls Rivers
Impacts on wells
Impacts on non-agricultural irrigation water users
Impacts on surface water drainage
Impacts to aesthetics
Impacts to power generation

The following sections list the specific comments received:

4.3.1.1 WATER RESOURCES

Citizens of the town of Marysville currently have access to the irrigation water for civic uses. Will they have access to this pressurized system? Who will pay for this access?

Upper landowners will not get full pressure from this system. Can a parallel pump pressurized system be installed for these users? What would be the repayment schedule for full-pressure versus partial-pressure system users?

People have shares delivered now by pipe to their property but do not have a pump. Will they be able to receive their shares after gravity pipeline installation?

Utilize excess water two ways: 1) City of Ashton supplemental water supply (would dilute nitrates in existing water supply); 2) By supplementing Ashton water supply, the city could in turn provide water to any households with potentially impacted wells. Recommend City of Ashton be given first chance at acquisition of surplus water.

4.3.1.2 GROUND WATER – QUANTITY

How much ground water will be lost? Will this project dry up domestic wells?

4.3.1.3 SURFACE WATER – QUANTITY

How big will the regulating reservoir be? How will we handle overflow from this reservoir? What portions of the ditches will remain? What portions will be filled? What effect will this have on surface water drainage?

4.3.1.4 WILDLIFE-HABITAT

What will happen to the water quantity and vegetation along the overflow routes? Will surface water remain available for wildlife?

4.3.1.5 ECONOMICS

What are the changes in property values? Will it increase with a more efficient system or decrease with the loss of aesthetics associated with the open ditches?
What is the cost for a small acreage outlet?

4.3.1.6 AESTHETICS

Will there be a loss of aesthetics with the loss of the ditches? Will this loss affect property values?

4.3.1.7 POWER GENERATION

Is there a potential for power generation in parts of the pipeline with the excess system pressure?

4.3.1.8 WATER QUALITY

Water quality surface and ground: needs further study on surface water fed by the ditch. Plants and animals, T&E, fish, and wildlife needs further thorough study. Will change a lot of people's yards and the look of the landscape, open water is a valuable resource. Also, concerned about the drying up the wetlands in the 16-mile area.

4.3.1.9 OTHER COMMENT

The Federal Advisory Council on Historic Preservation - USDA Liaison advised that they do not believe that their participation in the consultation to resolve adverse effects is needed; but, at the conclusion of the consultation process, the NRCS will need to file one copy of the final NRCS-SHPO Agreement and supporting documentation with the Advisory Council.

5 DISTRIBUTION LIST

The following agencies, organizations and/or individuals were sent a draft copy of the report, as part of the public review process.

Honorable Larry E. Craig
United States Senate
225 N. 9th St., Suite 530
Boise, ID 83702

Honorable Mike Crapo
United States Senate
251 E. Front St., Suite 205
Boise, ID 83702

Honorable Mike Simpson
United States House of Representatives
802 W. Bannock Street, Suite 600
Boise, ID 83702

Honorable Bill Sali
United States House of Representatives
802 W. Bannock Street, Suite 101
Boise, ID 83702

Honorable C. L. 'Butch' Otter
Office of the Governor
P.O. Box 83720
Boise, ID 83720

Army Corps of Engineers
c/o Brayton Willis
P.O. Box 2780
Boise, ID 83701-2780

Idaho Falls Office
Army Corps of Engineers
900 North Skyline Drive
Idaho Falls, ID 83402

David Schmidt, Area Conservationist
USDA, NRCS
1551 Baldy Ave., Suite 2
Pocatello, Idaho 83201-7117

Bonneville Power Administration
Idaho Falls Region
1350 Lindsay Blvd.
Idaho Falls, ID 83402

Bureau of Land Management
Upper Snake River District
1405 Hollipark Drive
Idaho Falls, Idaho 83401

J. Will McDonald, Regional Director
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1150 N. Curtis Road
Boise, ID 83706

US Bureau of Reclamation
c/o Lesa Stark
Snake River Area Office
230 Collins Road
Boise, ID 83702-4520

Larry Timchak, Forest Supervisor
Caribou-Targhee National Forest
Headquarters Office
1405 Hollipark Drive
Idaho Falls, Idaho 83401

Caribou-Targhee National Forest
Ashton/Island Park Ranger District
46 0 South Highway 20
P.O. Box 858
Ashton, Idaho 83420

Elin Miller
Regional Administrator
U.S. Environmental Protection Agency
1200 6th Avenue
Seattle, WA 98101

James Werntz, Asst Regional Administrator
U.S. Environmental Protection Agency
1435 N. Orchard St.
Boise, ID 83706

Wayne Hammon, State Executive Director
Farm Services Agency
9173 W. Barnes, Suite B
Boise, ID 83709-1555

Tauna Saurey, CED
Farm Services Agency
315 East 5th North
St. Anthony, ID 83445-1626

Jeff Foss, Snake River Supervisor
U.S. Fish and Wildlife Service
1387 S. Vinnell Way, Ste 368
Boise, ID 83709

Deb Mignogno, Supervisor
U.S. Fish and Wildlife Service
4425 Burley Dr., Ste A
Chubbuck, ID 83292

U.S. Fish and Wildlife Service
Special Agent Office
1820 East 17th Street
Idaho Falls, ID 83401

Northwest Power and Conservation Council
Idaho Office
450 West State St
P.O. Box 83720
Boise ID 83720-0062

Jack Doyle, Idaho District Chief
USGS-Idaho Water Science Center
230 Collins Road
Boise, ID 83702

USGS - Water Resources Division
Idaho Falls Field Office
P.O. Box 51099
366 D Street
Idaho Falls, Idaho 83405-1099

Nez Perce Tribe
Dept. of Natural Resources
P.O. Box 365
Lapwai, ID 83540

Shoshone-Bannock Tribes
P.O. Box 306
Fort Hall, ID 83203

Shoshone-Paiute Tribes
P.O. Box 21
Owyhee, NV 89832

Celia Gould, Director
Idaho Dept. of Agriculture
P. O. Box 790
Boise, ID 83701

Jerry Nicolescu, Administrator
Idaho Soil Conservation Commission
2270 Old Penitentiary Rd
P.O. Box 83720
Boise, ID 83720-0083

J. Kent Foster, Executive Director
IASCD
6003 Overland Rd., Suite 204
Boise, ID 83709

Toni Hardesty, Director
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255

Jim Johnston, Regional Administrator
c/o Troy Saffle
Idaho Department of Environmental Quality
900 N. Skyline, Ste. B
Idaho Falls, ID 83402

Cal Groen, Director
Idaho Department of Fish and Game
P. O. Box 25
600 South Walnut St.
Boise, ID 83707

Steve Schmidt, Upper Snake Regional Supervisor
Idaho Dept. Fish and Game
4279 Commerce Circle
Idaho Falls, ID 83401

Dr. Ken Reid, SHPO
Idaho State Historic Preservation Office
210 Main St.
Boise, ID 83702

George Bacon, Director
Idaho Department of Lands
P.O. Box 83720
Boise, Idaho 83720

Steve Douglas, Area Supervisor
Idaho Department of Lands
8355 W. State Street
Boise, ID 83703

Dave Tuthill, Interim Director
Idaho Department of Water Resources
322 E. Front Street
Boise, ID 83720-0098

Lyle Swank, East Regional Manager
Idaho Dept. of Water Resources
900 North Skyline Drive
Idaho Falls, ID 83402

Jeff Jenkins, President
Marysville Irrigation Company
P.O. Box 307
Ashton, ID 83420

Fremont County Commissioners
151 West 1st North
St. Anthony, ID 83445

City of Ashton
P.O. Box 689
Ashton, ID 83420

Dale Swensen, Manager
Fremont-Madison Irrigation District
PO Box 15
St. Anthony, ID 83445-0015

North Fremont Canal Systems
c/o Jack Marotz
84 Spruce Street
Ashton, ID 83420

Yellowstone Canal Company
c/o Jack Marotz
3935 E 1400 N
Ashton, ID 83420

Farmers Own Canal
c/o Sean Maupon
1353 N 3350 E
Ashton, ID 83420

Falls River Electric
1150 N 3400 E
Ashton, ID 83420

Evan Worrell, Chairman
Yellowstone Soil Conservation District
315 East 5th North
St. Anthony, ID 83445-1626

High Country RC&D
Attn: Steve Smart
302 Profit St.
Rexburg, ID 83440-1659

Idaho Water Users Association, Inc
1010 W Jefferson St., Ste. 101
Boise, ID 83702

Idaho Conservation League
710 N. 6th St.
Boise, ID 83702

Idaho Rivers United
2600 Rose Hill
Boise, ID 83705

Idaho Whitewater Unlimited
P.O. Box 570
Garden Valley, ID 83622

Henry's Fork Watershed Council
P.O. Box 852
Ashton, ID 83420

Henry's Fork Foundation
Steve Trafton, Executive Director
P.O. Box 550
Ashton, ID 83420

Greater Yellowstone Coalition
P.O. Box 1874
13 S. Willson, Suite 2
Bozeman, Montana 59771

6 REFERENCES

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7 APPENDIX A: CORRESPONDENCE

Notice of Public Meeting published.

August 14, 2006

Notice of Public Meeting

The Marysville Irrigation Company will hold a public meeting August 22, 2006, 7 p.m., North Fremont High School, Ashton, ID for the purpose of developing an Environmental Assessment by the Natural Resources Conservation Service.

The development of the EA will address the replacement of the existing open channel irrigation delivery system with the installation of 16 miles of three gravity pressurized delivery system pipelines. The project would be funded by the USDA Environmental Quality Incentives Program administered by the NRCS.

Primary purpose of proposed project is to save water and reduce energy consumption. Preliminary benefits include increased water flows in the Falls River and elimination of three irrigation return flows to the Henry's Fork.

Written comments will be accepted until September 5, 2006 by the Marysville Irrigation Company, P.O. Box 307, Ashton, ID 83420 or the NRCS, 315 East 5th North, St. Anthony, ID 83445.

Published August 16, 2006

Marysville Irrigation Company
P.O. Box 307
Ashton, Idaho 83420

August 14, 2006

To Whom It May Concern,

The Marysville Irrigation Company invites you to a public meeting regarding the development of an Environmental Assessment by the Natural Resources Conservation Service. The development of the EA will address the replacement of the existing open channel irrigation delivery system with the installation of 16 miles of three gravity pressurized delivery system pipelines. This system would provide water to approximately 5,200 acres of irrigated cropland. The 41 producers of the Marysville Irrigation Company would be receiving federal funding through the USDA NRCS Environmental Quality Incentives Program to install the gravity pressurized pipelines.

The meeting is being held to discuss or raise any possible issues and concerns that may need to be addressed in the development of the EA. The primary purpose of the proposed project is to save water and reduce energy consumption. Preliminary estimates of water savings are approximately 30 percent of 6,660 acre feet and the power savings is estimated to be 76 percent. Other benefits include possible increased water flows in the Falls River and the elimination of three irrigation return flows to the Henry's Fork of the Snake River.

The meeting will be held Tuesday, August 22 at 7 p.m. at North Fremont High School Auditorium in Ashton. Public comment will be taken at this time. Written comments will also be accepted and appreciated. Please send written comments to the Marysville Irrigation Company, P.O. Box 307, Ashton, ID 83420 or the Natural Resources Conservation Service, 315 East 5th North, St. Anthony, ID 83445 by September 5, 2006.

Sincerely,

Jeff Jenkins, President
Marysville Irrigation Company

Written comments are welcome throughout the planning process.

Marysville Irrigation Company Public Meeting Questionnaire

Please tell us what you think the major concerns, issues or impacts are, in regards to the Marysville Irrigation Company's proposed project. Impacts may be positive or negative. **You can mail your comments to:**
Marysville Irrigation Company P.O. Box 307, Ashton, Idaho, 83420 or the Natural Resources Conservation Service, 315 East 5th North, St. Anthony, Idaho 83445-1626 until September 5, 2006.
(Example: Water quantity is a high concern for me because (x) years out of 10 the Irrigation Co. is water short.

Potential Resource Concerns/Issues/Impacts
- Soil
(Erosion)
(Sedimentation)
- Water
(Quantity) – surface and ground
(Quality) – surface and ground
- Air Quality
- Plants and Animals
(Threatened & Endangered)
(Fish & Wildlife)
(Domestic)
- Human
(Cultural/Historical Resources)
(Safety & Health)
- Wetlands
- Riparian Zone
- Aesthetics/Recreation
- Public Utilities
- Transportation
- Economics
- Energy
- Other Potential Concerns/Issues/Impacts

Idaho Water Users Association, Inc.

205 N. 10th St., Suite 530 • BOISE, IDAHO 83702
OFFICE - 208-344-6690 • FAX - 208-344-2744
E-MAIL - iwua@iwua.org
WEBSITE - www.iwua.org

August 17, 2006

Marysville Irrigation Company
P. O. Box 307
Ashton, ID 83420

Natural Resources Conservation Service
315 East 5th North
St. Anthony, ID 83445

RE: Marysville (North Fremont) Gravity Pipeline Project

To Whom It May Concern:

In response to Jeff Jenkins' letter dated August 14, 2006, and consistent with the enclosed resolution adopted by our membership, the Idaho Water Users Association hereby expresses its support for the Marysville (North Fremont) Gravity Pipeline Project.

Sincerely,

Norman M. Semanko
Executive Director & General Counsel

NMS:kje

Enclosure

Please be advised that the Idaho Water Users Association adopted the following resolution in support of the above-mentioned project at its Annual Convention in Boise on January 25, 2007.

Norman M. Semanko
Executive Director & General Counsel
Idaho Water Users Association, Inc.
1010 W. Jefferson St., Suite 101
Boise, ID 83702
Telephone: 208-344-6690
Fax: 208-344-2744
Email: norm@iwua.org
Web Page: www.iwua.org

RESOLUTION 2007-12
NORTH FREMONT GRAVITY PRESSURE IRRIGATION PROJECT

WHEREAS, North Fremont Canal System, Inc. is proposing to plan and construct the North Fremont Gravity Pressure Irrigation Project (Project) located near Ashton, Idaho which will incorporate irrigation water from three (3) canals into a gravity pressure pipeline; and

WHEREAS, The Project is projected to significantly reduce transmission loss, eliminate 15,000 installed electric horsepower, for an estimated savings of about 20,000 megawatt hours of power annually, and provide an opportunity to develop approximately 36,000 megawatt hours of hydro-electric energy production; and

WHEREAS, The Project will also provide irrigation efficiencies and improve streamflows and water quality in Fall River and the Henry's Fork of the Snake River.

NOW, THEREFORE, BE IT RESOLVED, That the Idaho Water Users Association supports the North Fremont Canal System, Inc. in its efforts to fund, plan and build the North Fremont Gravity Pressure Irrigation Project.

United States Department of Agriculture

USDA

NRCS Natural Resources Conservation Service

9173 W. Barnes Dr., Ste. C, Boise, Idaho 83709

Date: August 14, 2006

Mr. Matt Thomas
USDA Program Liaison
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue Northwest, Room 809
Washington, DC 20004

CERTIFIED MAIL – RETURN
RECEIPT REQUESTED
NUMBER: 7005 1820 0003 4358 0587

Dear Mr. Thomas:

In accordance with Section 800.6 of the Federal regulations (36 CFR 800) implementing the National Historic Preservation Act (16 U.S.C. 470 et seq), we are notifying the Advisory Council of its intent to enter into agreements with the Idaho State Historic Preservation Officer (SHPO) to resolve adverse effects to historic properties from the following agency supported project:

NRCS-06-6186*: Marysville Pipeline Project*

The Idaho National Resources Conservation Service is proposing to provide technical and financial assistance to several private landowners in Fremont County, Idaho to convert approximately 11 miles of open irrigation ditch to buried pipeline. The eligible 1910 Marysville Irrigation Canal provides water to these ditches; and, although these field ditches are not contributing features to this canal system, a contributing concrete and wood head gate will be removed to facilitate the pipeline conversion project.

The affected property was examined and it has been determined by the NRCS Cultural Resource Specialist and the Idaho Historic Preservation Office that the proposed modifications constitute an adverse effect. The NRCS and the SHPO office have discussed preliminary plans to mitigate these effects. Please see the attached draft memorandum of agreement and other attached documentation for further information.

We are requesting Council input on its desire to be involved in the Section 106 process for this project. Since we plan to resolve adverse effects to historic properties with the appropriate level of Historic American Buildings Survey (HABS) and Historic American Engineering Records (HAER) documentation, we believe that Council involvement is not required.

We would like to proceed with these agreements as soon as possible and look forward to your response. Please contact Darin Vrem, Cultural Resource Specialist at 208-685-6995 or darin.vrem@id.usda.gov if there are any questions or additional information is needed.

Sincerely,

Bob Bartlett acting for

RICHARD SIMS
State Conversationalist, Idaho
enc.

The Natural Resources Conservation Service works in partnership with the American people to conserve and sustain natural resources on private lands.

An Equal Opportunity Provider and Employer

Preserving America's Heritage

August 28, 2006

Mr. Richard Sims
State Conservationist
Natural Resources Conservation Service - Idaho
9173 W. Barnes Drive, Ste. C
Boise, ID 83709

REF: *NRCS-06-6186: Marysville Pipeline Project*

Dear Mr. Sims:

On August 18, 2006, the Advisory Council on Historic Preservation received your notice and supporting documentation regarding adverse effects related to the referenced undertaking, which includes removal of a concrete and wood head gate on the 1910 Marysville Irrigation Canal system. As the included documentation indicated, the Marysville Irrigation Canal has been determined to be eligible for listing on the National Register of Historic Places. Based upon the documentation you have provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases,* of our regulations, "Protection of Historic Properties" (36 CFR Part 800) does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed.

Pursuant to 36 CFR 800.6(b)(iv), at the conclusion of the consultation process, you will need to file one copy of the final Memorandum of Agreement and related documentation with the Advisory Council on Historic Preservation. Thank you for providing us with your notification of adverse effect. If you have any questions or require further assistance, please contact me by phone at 202-606-8580 or email at mthomas@achp.gov.

Sincerely,

for Matthew M. Thomas
USDA – ACHP Liaison
Federal Property Management Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

RECEIVED MAR 1 2 2007

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
IDAHO FALLS REGULATORY OFFICE
900 NORTH SKYLINE DRIVE, SUITE A
IDAHO FALLS, IDAHO 83402-1718

February 9, 2007

Regulatory Division

SUBJECT: NWW-2006-541-I02

Mr. Mark Weatherstone
ASTC-TS
9173 West Barnes Drive, Suite C
Boise, Idaho 83709-1574

Dear Mr. Weatherstone:

This is in regard to your proposed discharge of dirt and rock fill in waters and wetlands associated with the construction of 16 miles of three new gravity pressurized pipelines and the decommissioning of abandoned sections of irrigation canals and laterals which was the subject of your January 2007 Draft Environmental Assessment. Section 404 of the Clean Water Act (33 U.S.C. 1344) requires a Department of the Army permit for the discharge of dredged or fill material into waters of the United States, including wetlands. This includes excavation activities which result in the discharge of dredged material and destroy or degrade waters of the United States.

Your proposed project, however, is exempt from the requirements of Section 404 of the Clean Water Act under 33 CFR 323.4(a)(3) (copy enclosed). This exemption is in effect only if the requirements of 33 CFR 323.4(b) and (c) are met. If you cannot meet these requirements, your project will require a Department of the Army permit and you should send us an application for permit.

This exemption applies only to the discharge of fill into waters and wetlands associated with the construction of irrigation structures and the decommissioning of canals and laterals. If you are planning other discharges of dredged or fill material into waters of the United States, including wetlands, a permit may be required and you should contact us.

This determination applies only to Department of the Army permits administered by the Corps of Engineers. Your project may also require permits from other Federal, state, and local agencies. A permit may be required from the Idaho Department of Water Resources for your project. You should contact them to obtain any necessary permits prior to the start of construction.

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A local floodplain management ordinance may have been adopted by your local city or county zoning office under the National Flood Insurance Program. You should contact them regarding any approvals or permits they may require for your project.

We are interested in your thoughts and opinions concerning the quality of service you received from the Walla Walla District, Corps of Engineers Regulatory Division. If you have Internet access and are interested in letting us know how we are doing, you can complete an electronic version of our Customer Service Survey form on our web site at: http://per2.nwp.usace.army.mil/survey.html which will be automatically submitted to us. Alternatively, you may call and request a paper copy of the survey that you may complete and return to us by mail or fax.

Please contact Mr. James Joyner at 208-522-1676 if you have any questions. A copy of this letter is being sent to Mr. Jeff Jenkins, Marysville Irrigation Company, PO Box 307, Ashton, Idaho 83420 and Natural Resources Conservation Service, 315 East 5th North, St. Anthony, Idaho 83445.

Sincerely,

Robert A. Brochu
Regulatory Project Manager

Enclosure

Discharges Not Requiring Permits
Section 323.4(a)(3)

(a) General. Except as specified in paragraphs (b) and (c) of this section, any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404:

(3) Construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance (but not construction) of drainage ditches. Discharges associated with siphons, pumps, headgates, wingwalls, weirs, diversion structures, and such other facilities as are appurtenant and functionally related to irrigation ditches are included in this exemption.

(b) If any discharge of dredged or fill material resulting from the activities listed in paragraphs (a)(1) - (6) of this section contains any toxic pollutant listed under Section 307 of the CWA such discharge shall be subject to any applicable toxic effluent standard or prohibition, and shall require a Section 404 permit.

(c) Any discharge of dredged or fill material into waters of the United States incidental to any of the activities identified in paragraphs (a)(1) - (6) of this section must have a permit if it is part of an activity whose purpose is to convert an area of the waters of the United States into a use to which it was not previously subject, where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced. Where the proposed discharge will result in significant discernible alterations to flow or circulation, the presumption is that flow or circulation may be impaired by such alteration. For example, a permit will be required for the conversion of a cypress swamp to some other use or the conversion of a wetland from silvicultural to agricultural use when there is a discharge of dredged or fill material into waters of the United States in conjunction with construction of dikes, drainage ditches or other works or structures used to effect such conversion. A conversion of a Section 404 wetland to a non-wetland is a change in use of an area of waters of the United States. A discharge which elevates the bottom of waters of the United States without converting it to dry land does not thereby reduce the reach of, but may alter the flow or circulation of, waters of the United States.

(d) Federal projects which qualify under the criteria contained in Section 404(r) of the CWA are exempt from Section 404 permit requirements, but may be subject to other state or Federal requirements.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

900 North Skyline Drive, Suite B • Idaho Falls, Idaho 83402 • (208) 528-2650

James E. Risch, Governor
Toni Hardesty, Director

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February 27, 2007

Mark Weatherstone
Assistant State Conservationist
NRCS Idaho State Office
9173 W. Barnes Dr., Suite C
Boise, ID 83709-1574

Re: DEQ comments on Draft Environmental Assessment for the Marysville Irrigation Company Gravity Pressurized Irrigation Delivery System involving the Henry's Fork of the Snake River and the Falls River.

Dear Mr. Weatherstone:

The Idaho Department of Environmental Quality ("Department") reviewed the Draft EA document for the Marysville Irrigation Company Gravity Pressurized Irrigation Delivery System. It is believed by the Department that implementing improved irrigation efficiency, while reducing the demand for electricity to produce crops is an exemplary conservation effort. Additionally, reducing thermal and sediment loading to the Henry's Fork of the Snake River by reducing irrigation return flow would be a net gain for fisheries and recreation as well as water quality.

The Department is hopeful that the Source Water Protection Plan written for the aquifer in the vicinity of this project will be useful in identifying priority areas for implementing practices that reduce nitrate loading.

The Department appreciates the opportunity to comment on this document. If there is any need for further information please contact either Troy Saffle or Thomas Herron at the Idaho Falls Regional Office at 208.528.2650.

Sincerely,

for James S. Johnston
Regional Administrator
Idaho Falls Regional Office

037575

THE HENRY'S FORK FOUNDATION, INC.

RECEIVED MAR

Mailing Address
P.O. Box 550
Ashton, ID 83420

phone 208-652-3567
fax 208-652-3568
email hff@henrysfork.com

Headquarters
606 Main Street
Ashton, ID 83420

Watershed Center
604 Main Street
Ashton, ID 83420

Mark Weatherstone
ASTC-TS
9173 W. Barnes Drive, Suite C
Boise, ID 83709-1574

5 March, 2007

Subj.: Comments by the Henry's Fork Foundation regarding the Draft Environmental Assessment for the Marysville Irrigation Company's proposed Gravity Pressurized Irrigation Delivery System.

Dear Mr. Weatherstone:

Thank you for providing the public with the opportunity to make comments on the Draft Environmental Assessment (EA) for the Marysville Irrigation Company's proposed gravity pressurized irrigation delivery system.

I am writing this letter in my capacity as the Executive Director of the Henry's Fork Foundation (HFF). The HFF is a nonprofit conservation organization dedicated to the restoration, protection, and preservation of the Henry's Fork of the Snake River. The HFF has nearly 3,000 members nationwide, and is based in Ashton, Idaho.

As a general comment, the HFF supports projects that conserve, or make more efficient use of, the water of the Henry's Fork watershed. With that in mind, the proposed irrigation delivery system appears, as it is described by the draft EA, to be an improvement over the existing system. With that said, the HFF offers the following specific comments:

1. Fall River flows: Irrigation diversions have made the lower Fall River one of the most hydrologically altered river reaches in the entire Henry's Fork watershed. The "saved" water that will result from this project could possibly provide fisheries benefits to the lower Fall River, but only if that water stays in the Fall River long enough to provide those benefits. How far downstream will "saved" water flow beyond the new irrigation system's point of diversion in the Fall River before it is diverted? At what point before, or during, the irrigation season can a determination be made regarding whether or not (and if so to what extent) that year is "water short," and – assuming that not all of the water was going to be stored in Grassy Lake Reservoir until September – could a release schedule be devised that would serve the dual purpose of providing hydropower generation benefits and improved flows in the lower Fall River?

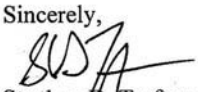
The final EA should provide additional clarity regarding changes to Fall River flows resulting from the "saved" water resulting from this project.

2. Socioeconomic: Section 3.16 of the draft EA notes the value of produce sales by Fremont County farms over the past few years. The draft EA does not note the fact that the recreational fisheries of the Henry's Fork watershed, of which the Fall River is an integral part, generate an estimated $29 million in income to the local economy and support, directly or indirectly, more than 800 jobs (Loomis, 2005). Those recreation fisheries depend on water, hence the HFF's question regarding more certainty about flows from Grassy Lake Reservoir set forth above. The final EA should note the value of the recreational fishery.

3. This project will require a substantial expenditure of public funds. The stated purpose of the project is to "provide for the delivery of gravity pressurized irrigation water to approximately 6,130 acres surrounding Marysville, Idaho...." The HFF is in favor of projects that improve irrigation efficiency and simultaneously create opportunities for improvements to the fishery and other aspects of the watershed. The HFF questions, however, the expenditure of public funds towards agricultural improvement projects if the agricultural land targeted by the project is likely to be converted to some other use, in particular sold for conversion to residential or commercial development. The expenditure of public funds to bring this project to a conclusion implies a commitment and a responsibility to agriculture on those 6,130 acres, and the final EA should recognize that fact.

Thank you for your consideration of these comments. Please call me at (208) 652 3567, or send me an e-mail at stevetrafton@henrysfork.org, if you have any questions for me.

Sincerely,



Stephen D. Trafton
Executive Director

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
9173 W. Barnes Drive, Suite C
Boise, Idaho 83709
(208) 378-5700

April 26, 2007

Stephen D. Trafton, Executive Director
Henry's Fork Foundation, Inc.
P.O. Box 550
Ashton, ID 83420

Dear Mr. Trafton:

Thank you for your letter and review of the Draft Environmental Assessment (EA) of the Marysville Irrigation Company's proposed Gravity Pressurized Irrigation Delivery System. This is to inform you that your specific comments and recommendations were incorporated into the final EA.

Comment Number 1. Fall River Flows:

> *How far downstream will the "saved water" flow beyond the new Marysville Irrigation System's point of diversion in the Fall River before it's diverted?*

We have clarified those remarks regarding changes to Fall River flows resulting from the "saved" water from the proposed project. The information can be found in the seventh paragraph in section 3.2.2.2 on page 18. Please see the attached page.

There are seven irrigation diversions below the Marysville diversion and one above on the Fall River. The Farmer's Own Canal is approximately five (5) river miles downstream, with the Enterprise Canal eight (8) miles below the Farmer's Own.

The existing hydro diversion is the same as Marysville's. It will divert any saved water, run it through the turbines and release it back into Fall River approximately one (1) mile below Farmer's Own. Any benefits to the lower Fall River, below the Marysville diversion, will occur in the seven miles from the return flow to the Enterprise diversion and, to a decreasing extent, down to the next five diversions. The hydro is limited by the amount of water that can be diverted by a Minimum Streamflow below the diversion.

We believe that the greater benefit of the project will occur in the Upper Fall River as described in the EA on page 27, Section 3.7.2.2.

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Comment Number 2. The Value of Recreational Fisheries.

The final EA should note the value of the recreational fishery.

We have incorporated the value of the recreational fishery utilizing your reference. The information can be found in the seventh paragraph in section 3.16 on page 36. See the attached page from the EA.

Comment Number 3. Conversion of Agricultural Land to Residential or Commercial.

The expenditure of public funds to bring this project to a conclusion implies a commitment and a responsibility to agriculture on the proposed 6,130 acres, and the final EA should recognize that fact.

We have incorporated your comments concerning the conversion of Agricultural Land to Residential or Commercial. The revised information can be found in the sixth and seventh paragraph in section 3.16.2 on page 37. Please reference the attached page.

We believe that this comment is very positive. The proposed project should help these acres become more profitable by reducing operating costs and water-short years, thereby insuring they stay in production. By improving the landowners' economic situations, they will be less likely to sell for development. Furthermore, public funds will only be used for agricultural purposes and any costs associated with non-agricultural uses will be paid by those users.

I believe that we have addressed all your comments by the revisions cited above. Thank you again for your interest in this project.

Richard Sims

RICHARD SIMS
State Conservationist

cc:
Mark Weatherstone, Assistant State Conservationist (Technical Services), NRCS, Boise SO
John Kendrick, Water Planning Specialist, NRCS, Boise SO
Ken Beckmann, District Conservationist, NRCS, St. Anthony FO

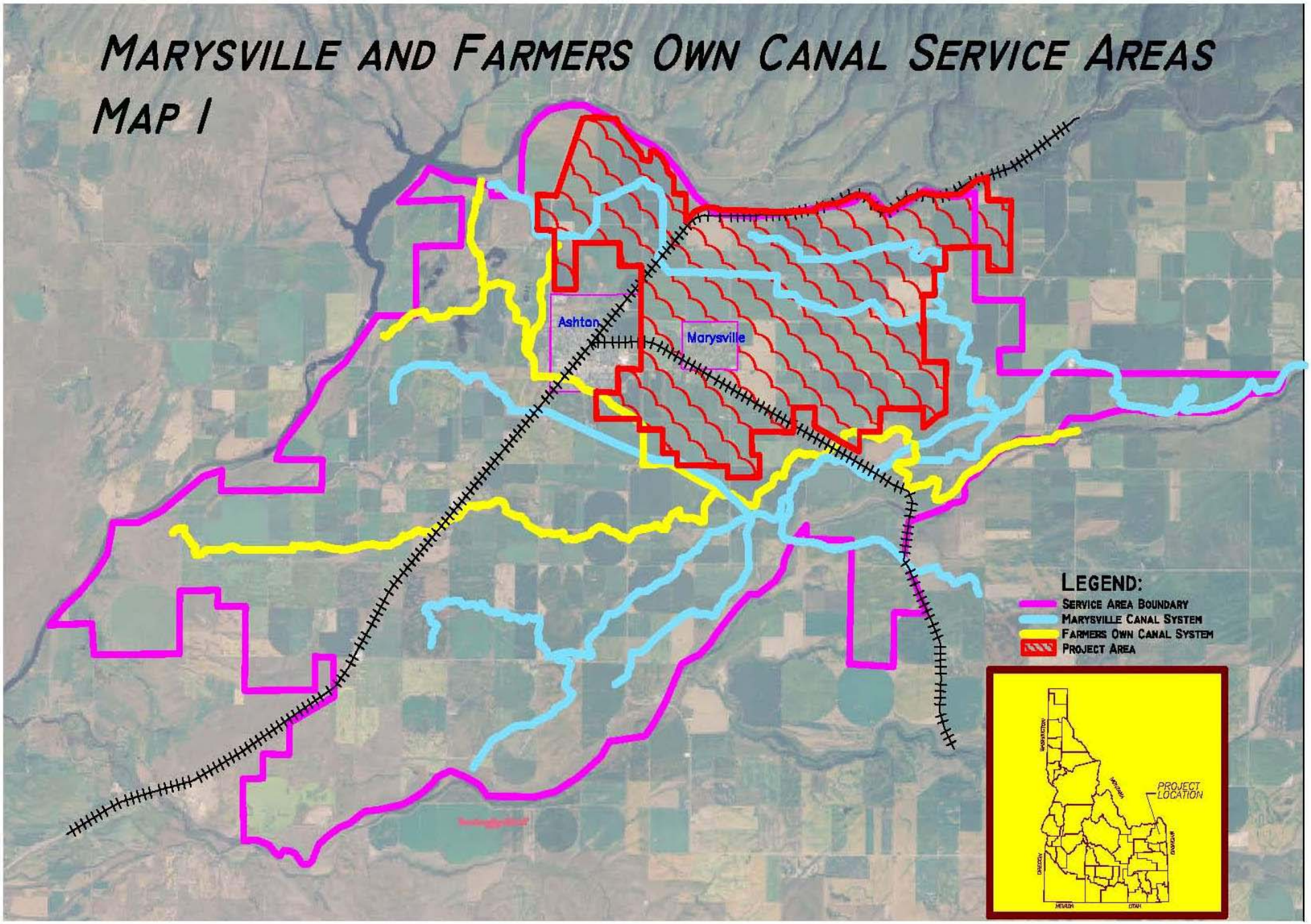
8 APPENDIX B - WATERSHED MAPS

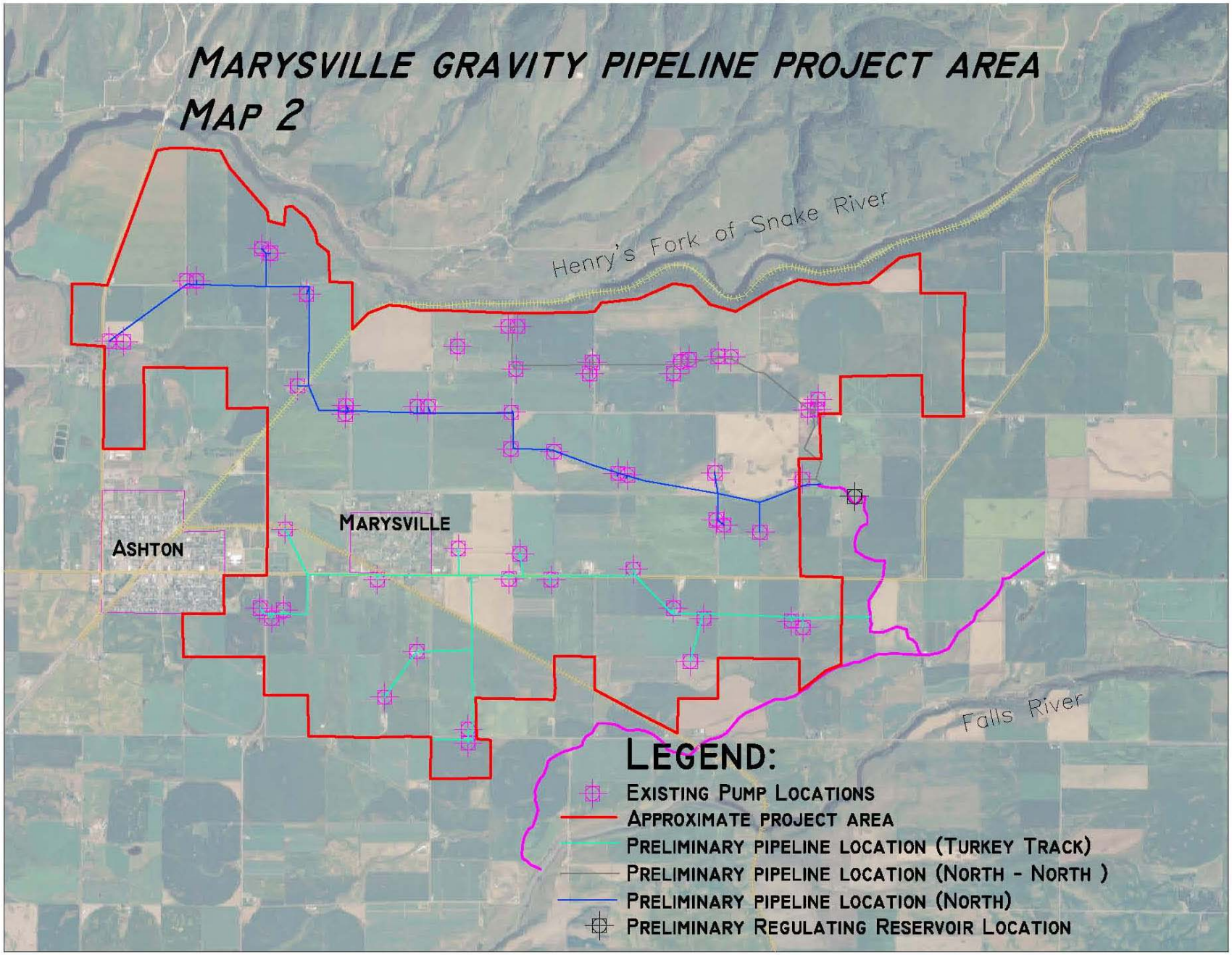
Map 1 – Project Area and Location

Map 2 – Proposed Alternative

Marysville and Farmers Own Canal Service Areas

Map 1




MARYSVILLE GRAVITY PIPELINE PROJECT AREA
MAP 2
Henry's Fork of Snake River
ASHTON
MARYSVILLE
Falls River
LEGEND:
EXISTING PUMP LOCATIONS
APPROXIMATE PROJECT AREA
PRELIMINARY PIPELINE LOCATION (TURKEY TRACK)
PRELIMINARY PIPELINE LOCATION (NORTH - NORTH)
PRELIMINARY PIPELINE LOCATION (NORTH)
PRELIMINARY REGULATING RESERVOIR LOCATION